#### **Programming Assignment\_6**

1. Write a Python Program to Display Fibonacci Sequence Using Recursion?
2. Write a Python Program to Find Factorial of Number Using Recursion?
3. Write a Python Program to calculate your Body Mass Index?
4. Write a Python Program to calculate the natural logarithm of any number?
5. Write a Python Program for cube sum of first n natural numbers?

Q 1: Write a Python Program to Display Fibonacci Sequence Using Recursion?

Solution :

**import logging as lg  
lg.basicConfig(level=lg.INFO)  
  
def fib(n):  
 try :  
 if n <= 1:  
 return n  
 return (fib(n - 1) + fib(n - 2))  
 except Exception as e:  
 lg.error(e)  
   
  
def main():  
 try :  
 while True:  
 n = int(input("How many terms? "))  
   
 if n <= 0:  
 print("Enter a positive integer!")  
 else:  
 print("Fibonacci sequence:")  
 for i in range(n):  
 print(fib(i))  
 break  
 except Exception as e:  
 lg.error(e)  
  
if \_\_name\_\_ == '\_\_main\_\_':  
 main()**

Q 2: Write a Python Program to Find Factorial of Number Using Recursion?

Solution :

**import logging as lg  
lg.basicConfig(level=lg.INFO)  
  
def fact(n):  
 try :  
 if n <= 1:  
 return n  
 return (n\*fact(n-1))  
 except Exception as e:  
 lg.error(e)  
   
  
def main():  
 try :  
 while True:  
 n = int(input("Enter any Number"))  
   
 if n <= 0:  
 print("Enter a positive integer!")  
 else:  
 print("Factorial of {} is : {}".format(n, fact(n)))  
 break  
 except Exception as e:  
 lg.error(e)  
  
if \_\_name\_\_ == '\_\_main\_\_':  
 main()**

Q 3: Write a Python Program to calculate your Body Mass Index ?

Solution :

**import logging as lg  
lg.basicConfig(level=lg.INFO)  
  
def bmi():  
 try:  
 weight = float(input("enter your mass in kilogram (KG) : "))  
 height = float(input("enter your height in metres(M) : "))  
 bmi = weight // (height \*\* 2)  
 print("your body mass index = ".capitalize(), bmi, " kg/m2")  
  
 if bmi <= 18.5:  
 print("Below standard Weight")  
  
 elif bmi >= 18.5 and bmi <= 24.9:  
 print("Normal standard weight")  
  
 elif bmi >= 25 and bmi <= 29.9:  
 print("Over weighed ")  
  
 else:  
 print("you have obesity and needs quick medical attention")  
  
 except Exception as e:  
 lg.error(e)  
  
if \_\_name\_\_ == "\_\_main\_\_":  
 bmi()**

Q 4: Write a Python Program to calculate the natural logarithm of any number?

Solution :

**import math  
print( math.log(10, 10))**

Q 5: Write a Python Program for cube sum of first n natural numbers?

Solution :

**def cubes\_sum (num):  
 sum = 0  
 for i in range(1, num+1):  
 sum += i \* i \* i  
  
 return sum  
  
print(cubes\_sum(8))**