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

Ans:

[4]:
```
def fibonacci_recursion(n):
   if n <= 1:
       return n
   else:
       return(fibonacci_recursion(n-1) + fibonacci_recursion(n-2))
nterms = int(input("How many terms: "))
if nterms <= 0:
   print("Plese enter a positive integer")
else:
   print("Fibonacci sequence:")
   for i in range(nterms):
       print(fibonacci_recursion(i))
```

```
How many terms: 10
Fibonacci sequence:
0
1
1
2
3
5
8
13
21
34
```

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

Ans:

]:
```
def factorial_recursion(n):
   if n == 1:
       return n
   else:
       return n*factorial_recursion(n-1)

num = int(input("Enter a number: "))
if num < 0:
   print("Sorry, factorial does not exist for negative numbers")
elif num == 0:
   print("The factorial of 0 is 1")
else:
   print("The factorial of", num, "is", factorial_recursion(num))
```

```
Enter a number: 5
The factorial of 5 is 120
```

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

Ans:

]:
```
def bmi(height,weight):
    BMI = weight/(height**2)
    print(f"You BMI is {BMI}")

    if BMI <= 18.4:
        print("You are underweight.")
    elif BMI <= 24.9:
        print("You are healthy.")
    elif BMI <= 29.9:
        print("You are over weight.")
    elif BMI <= 34.9:
        print("You are severely over weight.")
    elif BMI <= 39.9:
        print("You are obese.")
    else:
        print("You are severely obese.")


height = float(input("Enter your height in meter : "))
weight = float(input("Enter your weight in kg : "))
bmi(height,weight)
```

```
Enter your height in meter : 1.76
Enter your weight in kg : 70
You BMI is 22.59814049586777
You are healthy.
```

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

Ans:

```
import math
num = float(input("Enter a number: "))
print ("Natural Logarithm of {0} : ".format(num), math.log(num))
```

```
Enter a number: 50.6
Natural Logarithm of 50.6 :  3.92395157629342
```

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

Ans:

```
def cube_sum(n):
    sum = 0
    for i in range(1, n+1):
        sum +=i*i*i
    return sum
n = int(input("Enter a number: "))
print("Cube sum of {0} natural numbers are : ".format(n),cube_sum(n))
```

```
Enter a number: 5
Cube sum of 5 natural numbers are :  225
```