

- Write a Python Program to Display Fibonacci Sequence Using Recursion?

```
In [1]: 1 def fibonacci_sequence(n):
2         if n <= 0:
3             return "Please enter a positive integer greater than zero."
4         elif n == 1:
5             return [0]
6         elif n == 2:
7             return [0, 1]
8         else:
9             fib_seq = fibonacci_sequence(n - 1)
10            fib_seq.append(fib_seq[-1] + fib_seq[-2])
11            return fib_seq
12
13 # Taking user input for the number of terms
14 terms = int(input("Enter the number of terms in the Fibonacci sequence: "))
15
16 # Generating and printing the Fibonacci sequence using recursion
17 result = fibonacci_sequence(terms)
18 print(f"The Fibonacci sequence up to {terms} terms is: {result}")
19
```

Enter the number of terms in the Fibonacci sequence: 58

The Fibonacci sequence up to 58 terms is: [0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377, 610, 987, 1597, 2584, 4181, 6765, 10946, 17711, 28657, 46368, 75025, 121393, 196418, 317811, 514229, 832040, 1346269, 2178309, 3524578, 5702887, 9227465, 14930352, 24157817, 39088169, 63245986, 102334155, 165580141, 267914296, 433494437, 701408733, 1134903170, 1836311903, 2971215073, 4807526976, 7778742049, 12586269025, 20365011074, 32951280099, 53316291173, 86267571272, 139583862445, 225851433717, 365435296162]

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

```
In [2]: 1 def factorial(n):
2         if n == 0 or n == 1:
3             return 1
4         else:
5             return n * factorial(n - 1)
6
7 # Taking user input for a number
8 number = int(input("Enter a number to find its factorial: "))
9
10 # Checking for negative numbers
11 if number < 0:
12     print("Factorial is not defined for negative numbers.")
13 else:
14     # Calculating the factorial using recursion
15     result = factorial(number)
16     print(f"The factorial of {number} is: {result}")
```

Enter a number to find its factorial: 5

The factorial of 5 is: 120

- Write a Python Program to calculate your Body Mass Index?

```
In [4]: 1 def calculate_bmi(weight, height):
2         return weight / (height ** 2)
3
4         # Taking user input for weight and height
5         weight = float(input("Enter your weight in kilograms: "))
6         height = float(input("Enter your height in meters: "))
7
8         # Calculating BMI using the function
9         bmi = calculate_bmi(weight, height)
10
11         print(f"Your Body Mass Index (BMI) is: {bmi}")
12
```

Enter your weight in kilograms: 80
Enter your height in meters: 156
Your Body Mass Index (BMI) is: 0.003287310979618672

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

```
In [5]: 1 import math
2
3         # Taking user input for a number
4         number = float(input("Enter a number: "))
5
6         # Calculating the natural logarithm
7         natural_log = math.log(number)
8
9         print(f"The natural logarithm of {number} is: {natural_log}")
10
```

Enter a number: 56
The natural logarithm of 56.0 is: 4.02535169073515

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

```
In [6]: 1 def cube_sum(n):
2         sum_of_cubes = 0
3         for i in range(1, n + 1):
4             sum_of_cubes += i ** 3
5         return sum_of_cubes
6
7         # Taking user input for the number of natural numbers
8         n = int(input("Enter the value of n: "))
9
10        # Calculating the cube sum using the function
11        result = cube_sum(n)
12        print(f"The cube sum of the first {n} natural numbers is: {result}")
13
```

Enter the value of n: 5
The cube sum of the first 5 natural numbers is: 225

```
In [ ]: 1
```

