

python_basic_programming_6

May 12, 2023

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

```
[1]: 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: 12
0, 1, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377, 610,

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

```
[3]: 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: 6
The Factorial of 6 is 720

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

```
[4]: 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): 60

Enter your Height(mts): 1.7

Your're BMI is 20.761245674740486 and status is Healthy

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

```

[5]: import math
def genNatLog():
    in_num = eval(input("Enter a Number:"))
    print(math.log(in_num))

genNatLog()

```

Enter a Number:24

3.1780538303479458

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

```

[7]: 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: 9

The Cube Sum of First 9 Natural Numbers is 2025.0

[]: