Programming Basic Assignment 6

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

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•[4]:
```
# the nth term is the sum of (n-1)th and (n-2)th term.
def recur_fibo(n):
    if n <= 1:
        return n
    else:
        return(recur_fibo(n-1) + recur_fibo(n-2))

nterms = int(input('enter a num for terms want to see : '))

# check if the number of terms is valid
if nterms <= 0:
    print("Plese enter a positive integer for terms !!")
else:
    print("Fibonacci sequence:")
    for i in range(nterms):
        print(recur_fibo(i))
```

```
enter a num for terms want to see :  5
Fibonacci sequence:
0
1
1
2
3
```

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

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[1]:
```
## n*n-1*n-1........n!
def fact(n):
    if n == 1:
        return n
    else:
        return n*fact(n-1) ## recursive fun

fact_num =  int(input('enter a num for terms want to see : '))

print('the factorial of', fact_num, 'is',fact(fact_num))
```

```
enter a num for terms want to see :  4
the factorial of 4 is 24
```

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

```
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[3]: height = float(input("Enter your height in cm: "))
     weight = float(input("Enter your weight in kg: "))

     BMI = round(weight / (height/100)**2)

     print(f"You BMI is {BMI}")

     Enter your height in cm:  5
     Enter your weight in kg:  58
     You BMI is 23200
```

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

```
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[9]: #log(a,base)
     import math
     num = int(input('enter a number :'))

     print (f"Natural logarithm of {num} is : ", round(math.log(14)))

     enter a number : 14
     Natural logarithm of 14 is :  3
```

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

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

[11]: def cube_sum(n):
          total = 0
          for i in range(1, n+1):
              total = total + i*i*i
          return total

      nterms = int(input('enter a digit for terms :'))

      print("summation of cubes : ", cube_sum(nterms))

      enter a digit for terms : 3
      summation of cubes :  36

[ ]:
```