27-11-23

Scope

Day 54

↳ Refers to the visibility of the variable.

↳ Types
- Local scope (locally) (within a function)
- Global scope. (Globally from any part of the program)

* Code:

```
x = 50  # Global var
def add():
    x = 30  # local var
    print("value of x = ", x)
    x = x + 10
    print("value of x = ", x)
print("value of x = ", x)
add()
print("Value of x = ", x)
```

Function Composition

* A function → values which are returned can be used an argument for another function.

```
>>> a = math.sqrt(math.log(x+1))
```

Recursion

→ A function that calls itself

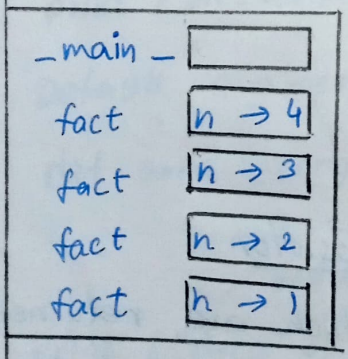
Q1: Write a python program to find factorial of a given number using recursion.

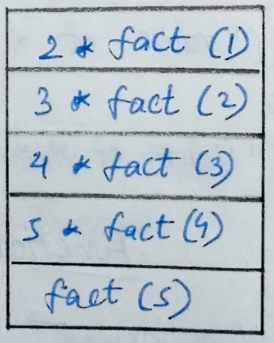
```
def fact(x):
    if (x == 1):
        return(1)
    else:
        return (x * fact(x-1))
n = int(input("Enter a number: "))
f = fact(n)
print("factorial = ", f)
```

#Data Structure

Stack (LIFO) Last In First Out

Queue (FIFO) First In First Out





Q2: Write a python program to find the sum of n natural numbers.

```
def Sum_digits(x):
    return 1 if (x==1) else (x + Sum_digits(x-1))
num = int(input("Enter n: "))
Sum_digits(num)
```

Q3. GCD

```
def GCD (a,b):
    rem = a%.b
    return (b) if (rem==0) else (GCD(b,rem))
n = int (input("Enter n :"))
m = int (input("Enter m :"))
print("GCD=", GCD(n,m))
```