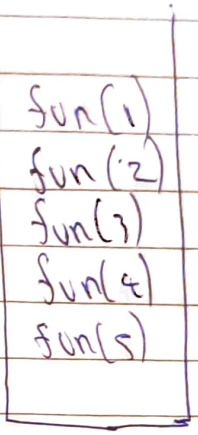
Recursion level-1

N = 5 5 4 3 2 1

fun(5) → fun(4) → fun(3) → fun(2) → f(1)

```
fun(n)
    prints(N)
        fun(n-1)
        if n==1
            print(1)
            return
```



Factorial of a Number

N = 5 Ans = 5! = 5*4*3*2*1 = 5×4!
= 120

Fact(5) = 5 * fact(4)
→ 4 * fact(3)

F(N) = N * F(N-1)

N!

F(5)
↓
5 * F(4)
↓
4 * F(3)
↓
3 * F(2)
↓
2 * f(1)

Q Sum of digits

N = 1342 Ans = 1 + 3 + 4 + 2

return F(N/10) + F(N % 10)

F(1342)
↓
2 + F(134)
↓
4 + F(13)
↓
3 + F(1)

* n-- vs --n

n-- vs --n

passing n and then subtracting

subract first then pass

Q Reverse a number :

N = 1824 ⇒ 4281

1824 → 4 + F(182)
↓
2 + F(18)
↓
8 + F(1)

①
```
sum = 0
fun(n){
    if(n==0){
        return;
    }
    rem = n%10
    sum = sum*10+rem
    fun(n/10);
}
```

② n = 1234

4 + 123

↓

4 * 1000 + 123

$4 * 10^3 + 123$

$\rightarrow 3 * 10^2 + F(12)$

↓

$2 * 10^1 + F(1)$

$F(N, arg) = rem * 10^{arg-1} + F(N/10, arg-1)$

Imp Concept

Q Count no of zeros in a number:

N = 30204 Ans = 2

① If we take count inside argument

$F(N, c) \longrightarrow$ if digit = 0

$f(N/10, c+1)$

else

$F(N/10, c)$

* Special example to return same value to above function calls.