

## Topics to discuss

- Factorial of a number
- Its time & space complexity.
- Add to Github

# Factorial of a Number

## Test case I

I/p = 4

O/p = 24

## Test case II

I/p = 0

O/p = 1

Assume  $n \geq 0$

res = 1 ; n = 4

i = 1

res =  $1 \times 1 = 1$

i = 2

res =  $1 \times 2$

i = 3

res =  $1 \times 2 \times 3$

i = 4

res =  $1 \times 2 \times 3 \times 4$

i = 5 X

```

static long iterativeSolution(int n){
    long res = 1;
    for(int i=1; i<=n; i++){
        res = res * i;
    }
    return res;
}

```

$$\underline{rs(3)} = \boxed{3 \times 2 \times 1}$$



$$3 \times \underline{rs(2)} = 3 \times 2 \times 1$$



$$2 \times \underline{rs(1)} = 2 \times 1$$



$$1 \times \underline{rs(0)} = 1 \times 1 = 1$$



1

```
static long recursiveSolution (int n) {  
    if (n == 0) return 1;  
    else return n * recursiveSolution(n-1);  
}
```

**Follow Now**

#DSAWithArfin



**Start Practicing**



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