Example

PERA Sum of first 'n' Natural Number

$1 + 2 + 3 + 4 + 5 + \ldots + n$

$sum(n) = 1 + 2 + 3 + 4 + \ldots + (n-1) + n$

$sum(n) = sum(n-1) + n$ (recursion formula)

$$sum(n) = \begin{cases} 0 & n = 0 \\ sum(n-1) + n & n > 0 \end{cases}$$

→ [illegible]

```
int sum(int n){
    if(n==0)
        return 0;
    else
    return sum(n-1)+n;
}
```

[illegible]

---

diger hesaplama formulu ise $\frac{n.(n+1)}{2}$

```
int sum(n){
  return n*(n+1)/2;
}
```

O(1)

```
int sum(n){
  int i,s=0;    -1
  for(i=1;i<=n;i++){   -n+1
    s=s+i;    -n
    return s;   -1
  }
}
```

O(n)

bellekte sadece 3 degisken icin yer ayrilir.

```
int sum(n){
  if(n==0)
    return 0;
  else
  return sum(n-1)+n;
}
```

sum(5) → 15

5 sum(4) = 15

4 sum(3) = 10

3 sum(2) = 6

T → O(n)

S → O(n)