Space Complexity

Order of growth of Memory (or RAM) usage in terms of input.

```
def getSum1(n):
    return n*(n+1)/2
```

$\Theta(1)$ or $O(1)$

```
def getSum2(n):
    sum = 0
    i = 1
    while i <= n:
        sum = sum + i
        i = i+1
    return sum
```

$\Theta(1)$ or $O(1)$

```
def listSum(l):
    sum = 0
    for x in l:
        sum = sum+x
    return sum
```

$\Theta(n)$

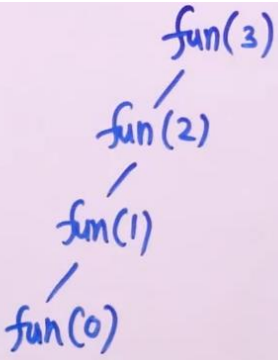
Auxiliary Space: Order of growth of extra space (space other than input/output)

```
def listSum(l):
    sum = 0
    for x in l:
        sum = sum + x
    return sum
```

Auxiliary : $\Theta(1)$

Space Complexity : $\Theta(n)$

```
def fun(n):
    if n <= 0:
        return 0
    else:
        return n + fun(n-1)
```



$\theta(n)$ — Aux Space

Space Complexity.