

Sum of Array

Given an array find its Sum.

$A = [1, 2, 5, 8, 7, 0]$

- ① Base Condition
- ② Divide the problem
- ③ Combine the solution

\swarrow n elements

$$\text{Sum}(A) = A[0] + A[1] + A[2] + \dots + A[n-1]$$

$$\text{Sum}(A, n) = \text{Sum}(A, n-1) + A[n-1]$$

Es $\rightarrow A = 1, 2, 5, 8, 7, 0$

$$\begin{aligned} \text{Sum}(A, 6) &= \text{Sum}(A, 5) + A[6-1] \\ &= \text{Sum}(A, 4) + A[4] \\ &= \text{Sum}(A, 3) + A[3] \end{aligned}$$

$$\text{Sum}(A, 0) = 0 \quad \leftarrow \text{Base Condition}$$

$$S(A, n) = \text{Sum}(A, n-1) + A[n-1] \quad \leftarrow \text{Recursive Step}$$

```
def sum_of(arr, n):  
    #base condition  
    if n == 0:  
        return 0
```

else:

return sum_of(arr, n-1) + arr[n-1]

