

Sum of Array

Given an array find its sum.

$$A = \boxed{1 \ 2 \ 5 \ 8 \ 7 \ 0}$$

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

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

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

$$\text{Ex} \rightarrow A = 1, 2, 5, 8, 7, 0$$

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

$$\text{Sum}(A, 0) = 0$$

Base condition

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

Recursive Step

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

```

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

```

