

## Data Structure HW5

### Problem 2: Rabbits and Vegetables

There are two rabbits and  $n$  different varieties of vegetables, each variety of vegetable should be consumed by exactly one rabbit.

The point of the vegetable with index  $i$  (0-indexed) is:

- $\text{benefit1}[i]$  if the first rabbit consumes it.
- $\text{benefit2}[i]$  if the second rabbit consumes it.

You are given a positive integer array  $\text{benefit1}$ , a positive integer array  $\text{benefit2}$ , and a non-negative integer  $m$ .

Return the **maximum** integer points the rabbits can accumulate if the first rabbit consumes exactly  $m$  varieties of vegetables.

#### Example 1:

**Input:**  $n = 4$ ,  $\text{benefit1} = [1, 1, 3, 4]$ ,  $\text{benefit2} = [4, 4, 1, 1]$ ,  $m = 2$

4
1 1 3 4
4 4 1 1
2

**Output:** 15

15
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**Explanation:** In this example, the first rabbit consumes the 2nd (0-indexed) and the 3rd varieties of vegetables, and the second rabbit consumes the 0th and the 1st varieties of vegetables. The total points are  $4 + 4 + 3 + 4 = 15$ . It can be proven that 15 is the maximum total points that the rabbits can accumulate.

#### Example 2:

**Input:**  $n = 2$ ,  $\text{benefit1} = [1, 1]$ ,  $\text{benefit2} = [1, 1]$ ,  $m = 2$

2  
1 1  
1 1  
2

Output: 2

2

**Explanation:** In this example, the first rabbit consumes the 0th (0-indexed) and the 1st varieties of vegetables, and the second rabbit does not consume any vegetable. The total points are  $1 + 1 = 2$ . It can be proven that 2 is the maximum total points that the rabbits can accumulate.

**Constraints:**

- $1 \leq n == \text{reward1.length} == \text{reward2.length} \leq 10^5$
- $1 \leq \text{reward1}[i], \text{reward2}[i] \leq 1000$
- $0 \leq m \leq n$