

### 1383. Maximum Performance of a Team

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You are given two integers  $n$  and  $k$  and two integer arrays `speed` and `efficiency` both of length  $n$ . There are  $n$  engineers numbered from 1 to  $n$ . `speed[i]` and `efficiency[i]` represent the speed and efficiency of the  $i^{\text{th}}$  engineer respectively.

Choose **at most**  $k$  different engineers out of the  $n$  engineers to form a team with the maximum **performance**.

The performance of a team is the sum of their engineers' speeds multiplied by the minimum efficiency among their engineers.

Return *the maximum performance of this team*. Since the answer can be a huge number, return it **modulo**  $10^9 + 7$ .

#### Example 1:

Input:  $n = 6$ , `speed = [2,10,3,1,5,8]`, `efficiency = [5,4,3,9,7,2]`,  $k = 2$

Output: 60

Explanation:

We have the maximum performance of the team by selecting engineer 2 (with `speed=10` and `efficiency=4`) and engineer 5 (with `speed=5` and `efficiency=7`). That is, `performance = (10 + 5) * min(4, 7) = 60`.

#### Example 2:

Input:  $n = 6$ , `speed = [2,10,3,1,5,8]`, `efficiency = [5,4,3,9,7,2]`,  $k = 3$

Output: 68

Explanation:

This is the same example as the first but  $k = 3$ . We can select engineer 1, engineer 2 and engineer 5 to get the maximum performance of the team. That is, `performance = (2 + 10 + 5) * min(5, 4, 7) = 68`.

#### Example 3:

Input:  $n = 6$ , `speed = [2,10,3,1,5,8]`, `efficiency = [5,4,3,9,7,2]`,  $k = 4$

Output: 72

#### Constraints:

- $1 \leq k \leq n \leq 10^5$
- `speed.length == n`
- `efficiency.length == n`
- $1 \leq \text{speed}[i] \leq 10^5$
- $1 \leq \text{efficiency}[i] \leq 10^8$

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```
1 class Solution {
2 public:
3     int maxPerformance(int n, vector<int>& speed, vector<int>& efficiency, int k) {
4     }
5 }
6
```

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