1896. Maximum Score from Performing Multiplication Operations

Difficulty : Hard

https://leetcode.com/problems/maximum-score-from-performing-multiplication-operations

You are given two **0-indexed** integer arrays `nums` and `multipliers` of size `n` and `m` respectively, where `n >= m`.

You begin with a score of `0`. You want to perform **exactly** `m` operations. On the i^{th} operation (**0-indexed**) you will:

- Choose one integer `x` from **either the start or the end** of the array `nums`.
- Add `multipliers[i] * x` to your score.
  - Note that `multipliers[0]` corresponds to the first operation, `multipliers[1]` to the second operation, and so on.
- Remove `x` from `nums`.

Return *the **maximum** score after performing* `m` *operations.*

Example 1:

```
Input: nums = [1,2,3], multipliers = [3,2,1]
Output: 14
Explanation: An optimal solution is as follows:
- Choose from the end, [1,2,3], adding 3 * 3 = 9 to the score.
- Choose from the end, [1,2], adding 2 * 2 = 4 to the score.
- Choose from the end, [1], adding 1 * 1 = 1 to the score.
The total score is 9 + 4 + 1 = 14.
```

Example 2:

```
Input: nums = [-5,-3,-3,-2,7,1], multipliers = [-10,-5,3,4,6]
Output: 102
Explanation: An optimal solution is as follows:
- Choose from the start, [-5,-3,-3,-2,7,1], adding -5 * -10 = 50 to the score.
- Choose from the start, [-3,-3,-2,7,1], adding -3 * -5 = 15 to the score.
- Choose from the start, [-3,-2,7,1], adding -3 * 3 = -9 to the score.
- Choose from the end, [-2,7,1], adding 1 * 4 = 4 to the score.
- Choose from the end, [-2,7], adding 7 * 6 = 42 to the score.
The total score is 50 + 15 - 9 + 4 + 42 = 102.
```

Constraints:

- `n == nums.length`
- `m == multipliers.length`
- `1 <= m <= 300`
- `m <= n <= 10^5`
- `-1000 <= nums[i], multipliers[i] <= 1000`