

1569. Max Dot Product of Two Subsequences

Difficulty : Hard

<https://leetcode.com/problems/max-dot-product-of-two-subsequences>

Given two arrays `nums1` and `nums2`.

Return the maximum dot product between **non-empty** subsequences of `nums1` and `nums2` with the same length.

A subsequence of a array is a new array which is formed from the original array by deleting some (can be none) of the characters without disturbing the relative positions of the remaining characters. (ie, `[2,3,5]` is a subsequence of `[1,2,3,4,5]` while `[1,5,3]` is not).

Example 1:

Input: `nums1 = [2,1,-2,5]`, `nums2 = [3,0,-6]`

Output: 18

Explanation: Take subsequence `[2,-2]` from `nums1` and subsequence `[3,-6]` from `nums2`.
Their dot product is $(2*3 + (-2)*(-6)) = 18$.

Example 2:

Input: `nums1 = [3,-2]`, `nums2 = [2,-6,7]`

Output: 21

Explanation: Take subsequence `[3]` from `nums1` and subsequence `[7]` from `nums2`.
Their dot product is $(3*7) = 21$.

Example 3:

Input: `nums1 = [-1,-1]`, `nums2 = [1,1]`

Output: -1

Explanation: Take subsequence `[-1]` from `nums1` and subsequence `[1]` from `nums2`.
Their dot product is -1 .

Constraints:

- $1 \leq \text{nums1.length}, \text{nums2.length} \leq 500$
- $-1000 \leq \text{nums1}[i], \text{nums2}[i] \leq 1000$