Best Time to Buy and Sell Stock IV

You are given an integer array prices where prices[i] is the price of a given stock on the i^{th} day, and an integer k.

Find the maximum profit you can achieve. You may complete at most k transactions: i.e. you may buy at most k times and sell at most k times.

Note: You may not engage in multiple transactions simultaneously (i.e., you must sell the stock before you buy again).

Example 1:

Input: k = 2, prices = [2,4,1]

Output: 2

Explanation: Buy on day 1 (price = 2) and sell on day 2 (price = 4), profit = 4-2 = 2.

Example 2:

Input: k = 2, prices = [3,2,6,5,0,3]

Output: 7

Explanation: Buy on day 2 (price = 2) and sell on day 3 (price = 6), profit = 6-2 = 4. Then buy on day 5 (price = 0) and sell on day 6 (price = 3), profit = 3-0 = 3.

Constraints:

- 1 <= k <= 100
- 1 <= prices.length <= 1000
- 0 <= prices[i] <= 1000