

## 3695. Maximize Alternating Sum Using Swaps

Solved ●

Hard Topics Hint

You are given an integer array `nums`.

You want to maximize the **alternating sum** of `nums`, which is defined as the value obtained by **adding** elements at even indices and **subtracting** elements at odd indices. That is, `nums[0] - nums[1] + nums[2] - nums[3]...`

You are also given a 2D integer array `swaps` where `swaps[i] = [pi, qi]`. For each pair `[pi, qi]` in `swaps`, you are allowed to swap the elements at indices `pi` and `qi`. These swaps can be performed any number of times and in any order.

Return the maximum possible **alternating sum** of `nums`.

### Example 1:

**Input:** `nums = [1,2,3]`, `swaps = [[0,2],[1,2]]`

**Output:** 4

**Explanation:**

The maximum alternating sum is achieved when `nums` is `[2, 1, 3]` or `[3, 1, 2]`. As an example, you can obtain `nums = [2, 1, 3]` as follows.

- Swap `nums[0]` and `nums[2]`. `nums` is now `[3, 2, 1]`.
- Swap `nums[1]` and `nums[2]`. `nums` is now `[3, 1, 2]`.
- Swap `nums[0]` and `nums[2]`. `nums` is now `[2, 1, 3]`.

### Example 2:

**Input:** `nums = [1,2,3]`, `swaps = [[1,2]]`

**Output:** 2

**Explanation:**

The maximum alternating sum is achieved by not performing any swaps.

### Example 3:

**Input:** `nums = [1,1000000000,1,1000000000,1,1000000000]`, `swaps = []`

**Output:** -2999999997

**Explanation:**

Since we cannot perform any swaps, the maximum alternating sum is achieved by not performing any swaps.

### Constraints:

- `2 <= nums.length <= 105`
- `1 <= nums[i] <= 109`
- `0 <= swaps.length <= 105`
- `swaps[i] = [pi, qi]`
- `0 <= pi < qi <= nums.length - 1`
- `[pi, qi] != [pj, qj]`

Seen this question in a real interview before? 1/5

Yes No

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Topics	▼
Hint 1	▼
Hint 2	▼
Hint 3	▼
Discussion (22)	▼

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