

2031. Count Subarrays With More Ones Than Zeros Premium

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You are given a binary array `nums` containing only the integers `0` and `1`. Return *the number of **subarrays** in `nums` that have **more** `1`'s than `0`'s. Since the answer may be very large, return it **modulo** $10^9 + 7$.*

A **subarray** is a contiguous sequence of elements within an array.

Example 1:

Input: `nums = [0,1,1,0,1]`
Output: `9`
Explanation:
The subarrays of size 1 that have more ones than zeros are: `[1]`, `[1]`, `[1]`
The subarrays of size 2 that have more ones than zeros are: `[1,1]`
The subarrays of size 3 that have more ones than zeros are: `[0,1,1]`, `[1,1,0]`, `[1,0,1]`
The subarrays of size 4 that have more ones than zeros are: `[1,1,0,1]`
The subarrays of size 5 that have more ones than zeros are: `[0,1,1,0,1]`

Example 2:

Input: `nums = [0]`
Output: `0`
Explanation:
No subarrays have more ones than zeros.

Example 3:

Input: `nums = [1]`
Output: `1`
Explanation:
The subarrays of size 1 that have more ones than zeros are: `[1]`

Constraints:

- `1 <= nums.length <= 105`
- `0 <= nums[i] <= 1`

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Yes No

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Hint 1

Change the zeros in `nums` to -1 and create a prefix sum array `prefixSum` using the new `nums`.

Hint 2

If `prefixSum[i]` for any index `i` in the range `0 <= i < prefixSum.length` is positive, that means that there are more ones than zeros in the prefix ending at index `i`.

Hint 3

If `prefixSum[j] > prefixSum[i]` for two indexes `i` and `j` such that `0 <= i < j < prefixSum.length`, that means that there are more ones than zeros in `nums` in the range `[i + 1 : j]` (inclusive)

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