

3284. Sum of Consecutive Subarrays Premium

Medium Topics Hint

We call an array `arr` of length `n` **consecutive** if one of the following holds:

- `arr[i] - arr[i - 1] == 1` for all `1 <= i < n`.
- `arr[i] - arr[i - 1] == -1` for all `1 <= i < n`.

The **value** of an array is the sum of its elements.

For example, `[3, 4, 5]` is a consecutive array of value 12 and `[9, 8]` is another of value 17. While `[3, 4, 3]` and `[8, 6]` are not consecutive.

Given an array of integers `nums`, return the *sum* of the **values** of all **consecutive** subarrays.

Since the answer may be very large, return it **modulo** `109 + 7`.

Note that an array of length 1 is also considered consecutive.

Example 1:

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

Output: `20`

Explanation:
The consecutive subarrays are: `[1]`, `[2]`, `[3]`, `[1, 2]`, `[2, 3]`, `[1, 2, 3]`.
Sum of their values would be: `1 + 2 + 3 + 3 + 5 + 6 = 20`.

Example 2:

Input: `nums = [1,3,5,7]`

Output: `16`

Explanation:
The consecutive subarrays are: `[1]`, `[3]`, `[5]`, `[7]`.
Sum of their values would be: `1 + 3 + 5 + 7 = 16`.

Example 3:

Input: `nums = [7,6,1,2]`

Output: `32`

Explanation:
The consecutive subarrays are: `[7]`, `[6]`, `[1]`, `[2]`, `[7, 6]`, `[1, 2]`.
Sum of their values would be: `7 + 6 + 1 + 2 + 13 + 3 = 32`.

Constraints:

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

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

Yes No

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Topics

ArrayTwo PointersDynamic Programming

Hint 1

Think of dynamic programming.

Hint 2

Another approach would be a two-pointer.

Hint 3

Start from the first index and traverse until the last one.

Hint 4

At each step, store the sum of the suffix that forms a consecutive subarray.

Hint 5

Do the above for both +1 and -1 and add them up.

Discussion (2)