1714. Sum Of Special Evenly-Spaced Elements In Array `Premium`

`Hard` · `Topics` · `Companies` · `Hint`

You are given a **0-indexed** integer array `nums` consisting of `n` non-negative integers.

You are also given an array `queries`, where `queries[i] = [x_i, y_i]`. The answer to the ith query is the sum of all `nums[j]` where $x_i <= j < n$ and $(j - x_i)$ is divisible by y_i.

Return *an array* `answer` *where* `answer.length == queries.length` *and* `answer[i]` *is the answer to the* i^{th} *query* **modulo** $10^9 + 7$.

Example 1:

```
Input: nums = [0,1,2,3,4,5,6,7], queries = [[0,3],[5,1],[4,2]]
Output: [9,18,10]
Explanation: The answers of the queries are as follows:
1) The j indices that satisfy this query are 0, 3, and 6. nums[0] + nums[3] + nums[6] = 9
2) The j indices that satisfy this query are 5, 6, and 7. nums[5] + nums[6] + nums[7] = 18
3) The j indices that satisfy this query are 4 and 6. nums[4] + nums[6] = 10
```

Example 2:

```
Input: nums = [100,200,101,201,102,202,103,203], queries = [[0,7]]
Output: [303]
```

Constraints:

- `n == nums.length`
- $1 <= n <= 5 * 10^4$
- $0 <= nums[i] <= 10^9$
- $1 <= queries.length <= 1.5 * 10^5$
- $0 <= x_i < n$
- $1 <= y_i <= 5 * 10^4$

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

`Yes` `No`

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🏷 Topics

`Array` `Dynamic Programming`

🏢 Companies

0 - 6 months

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💡 Hint 1

Think if y cannot be small. You can solve a query in O(n/y), so if y is large enough, it won't be a problem.

💡 Hint 2

If y is small, like less than B, you can preprocess the answers for all such ys in O(n * B), then answer each such query in O(1).

💡 Hint 3

As you might have already guessed, the optimal value for B is ~sqrt(n).

💬 Discussion (0)