

1918. Kth Smallest Subarray Sum Premium

Medium Topics Companies Hint

Given an integer array `nums` of length `n` and an integer `k`, return *the `kth` smallest subarray sum*.

A **subarray** is defined as a **non-empty** contiguous sequence of elements in an array. A **subarray sum** is the sum of all elements in the subarray.

Example 1:

Input: `nums = [2,1,3]`, `k = 4`
Output: `3`
Explanation: The subarrays of `[2,1,3]` are:
– `[2]` with sum 2
– `[1]` with sum 1
– `[3]` with sum 3
– `[2,1]` with sum 3
– `[1,3]` with sum 4
– `[2,1,3]` with sum 6
Ordering the sums from smallest to largest gives 1, 2, 3, 3, 4, 6. The 4th smallest is 3.

Example 2:

Input: `nums = [3,3,5,5]`, `k = 7`
Output: `10`
Explanation: The subarrays of `[3,3,5,5]` are:
– `[3]` with sum 3
– `[3]` with sum 3
– `[5]` with sum 5
– `[5]` with sum 5
– `[3,3]` with sum 6
– `[3,5]` with sum 8
– `[5,5]` with sum 10
– `[3,3,5]`, with sum 11
– `[3,5,5]` with sum 13
– `[3,3,5,5]` with sum 16
Ordering the sums from smallest to largest gives 3, 3, 5, 5, 6, 8, 10, 11, 13, 16. The 7th smallest is 10.

Constraints:

- `n == nums.length`
- `1 <= n <= 2 * 104`
- `1 <= nums[i] <= 5 * 104`
- `1 <= k <= n * (n + 1) / 2`

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

Yes No

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Hint 1

How can you compute the number of subarrays with a sum less than a given value?

Hint 2

Can we use binary search to help find the answer?

Discussion (3)