

5953. Sum of Subarray Ranges

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You are given an integer array `nums` . The **range** of a subarray of `nums` is the difference between the largest and smallest element in the subarray.

Return the **sum of all** subarray ranges of `nums` .

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

User Accepted:	0
User Tried:	0
Total Accepted:	0
Total Submissions:	0
Difficulty:	Medium

Example 1:

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

**Output:** 4

**Explanation:** The 6 subarrays of `nums` are the following:

[1], range = largest - smallest = 1 - 1 = 0

[2], range = 2 - 2 = 0

[3], range = 3 - 3 = 0

[1,2], range = 2 - 1 = 1

[2,3], range = 3 - 2 = 1

[1,2,3], range = 3 - 1 = 2

So the sum of all ranges is 0 + 0 + 0 + 1 + 1 + 2 = 4.

Example 2:

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

**Output:** 4

**Explanation:** The 6 subarrays of `nums` are the following:

[1], range = largest - smallest = 1 - 1 = 0

[3], range = 3 - 3 = 0

[3], range = 3 - 3 = 0

[1,3], range = 3 - 1 = 2

[3,3], range = 3 - 3 = 0

[1,3,3], range = 3 - 1 = 2

So the sum of all ranges is 0 + 0 + 0 + 2 + 0 + 2 = 4.

Example 3:

**Input:** `nums = [4,-2,-3,4,1]`

**Output:** 59

**Explanation:** The sum of all subarray ranges of `nums` is 59.

Constraints:

- 1 <= `nums.length` <= 1000
- 10<sup>9</sup> <= `nums[i]` <= 10<sup>9</sup>

JavaScript

```
1 const subArrayRanges = (a) => {
2   let n = a.length, res = 0;
3   for (let i = 0; i < n; i++) {
4     let min = Number.MAX_SAFE_INTEGER, max = Number.MIN_SAFE_INTEGER;
5     for (let j = i; j < n; j++) {
6       min = Math.min(min, a[j]);
7       max = Math.max(max, a[j]);
8       // let sub = a.slice(i, j + 1);
9       // pr(sub, min, max);
10      res += max - min;
11    }
12  }
```


```
12     }  
13     return res;  
14 };
```

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