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.

**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
* -109 <= nums[i] <= 109