Problem 1818: Minimum Absolute Sum Difference

Problem Information

Difficulty: Medium
Acceptance Rate: 31.87%
Paid Only: No
Tags: Array, Binary Search, Sorting, Ordered Set

Problem Description

You are given two positive integer arrays `nums1` and `nums2`, both of length `n`.

The **absolute sum difference** of arrays `nums1` and `nums2` is defined as the **sum** of `|nums1[i] - nums2[i]|` for each `0 <= i < n` (**0-indexed**).

You can replace **at most one** element of `nums1` with **any** other element in `nums1` to **minimize** the absolute sum difference.

Return the _minimum absolute sum difference**after** replacing at most one**** element in the array `nums1`._ Since the answer may be large, return it **modulo** `109 + 7`.

`|x|` is defined as:

* `x` if `x >= 0`, or * `-x` if `x < 0`.

Example 1:

Input: nums1 = [1,7,5], nums2 = [2,3,5] **Output:** 3 **Explanation:** There are two possible optimal solutions: - Replace the second element with the first: [1,_**7**_ ,5] => [1,_**1**_ ,5], or - Replace the second element with the third: [1,_**7**_ ,5] => [1,_**5**_ ,5]. Both will yield an absolute sum difference of |1-2| + (|1-3| or |5-3|) + |5-5| = 3.

Example 2:

Input: nums1 = [2,4,6,8,10], nums2 = [2,4,6,8,10] **Output:** 0 **Explanation:** nums1 is equal to nums2 so no replacement is needed. This will result in an absolute sum difference of 0.

Example 3:

Input: nums1 = [1,10,4,4,2,7], nums2 = [9,3,5,1,7,4] **Output:** 20 **Explanation:** Replace the first element with the second: [_**1**_ ,10,4,4,2,7] => [_**10**_ ,10,4,4,2,7]. This yields an absolute sum difference of |10-9| + |10-3| + |4-5| + |4-1| + |2-7| + |7-4| = 20

Constraints:

* `n == nums1.length` * `n == nums2.length` * `1 <= n <= 105` * `1 <= nums1[i], nums2[i] <= 105`

Code Snippets

C++:

```
class Solution {
public:
int minAbsoluteSumDiff(vector<int>& nums1, vector<int>& nums2) {

}
};
```

Java:

```
class Solution {
public int minAbsoluteSumDiff(int[] nums1, int[] nums2) {

}
}
```

Python3:

```
class Solution:
def minAbsoluteSumDiff(self, nums1: List[int], nums2: List[int]) -> int:
```