

Problem 3511: Make a Positive Array

Problem Information

Difficulty: Medium

Acceptance Rate: 35.60%

Paid Only: Yes

Tags: Array, Greedy, Prefix Sum

Problem Description

You are given an array `nums`. An array is considered **positive** if the sum of all numbers in each **subarray** with **more than two** elements is positive.

You can perform the following operation any number of times:

* Replace **one** element in `nums` with any integer between -1018 and 1018.

Find the **minimum** number of operations needed to make `nums` **positive**.

Example 1:

Input: nums = [-10,15,-12]

Output: 1

Explanation:

The only subarray with more than 2 elements is the array itself. The sum of all elements is $'(-10) + 15 + (-12) = -7'$. By replacing `nums[0]` with 0, the new sum becomes $'0 + 15 + (-12) = 3'$. Thus, the array is now positive.

Example 2:

Input: nums = [-1,-2,3,-1,2,6]

****Output:**** 1

****Explanation:****

The only subarrays with more than 2 elements and a non-positive sum are:

Subarray Indices | Subarray | Sum | Subarray After Replacement (Set `nums[1] = 1`) | New Sum ---|---|---|---|---
`nums[0...2]` | [-1, -2, 3] | 0 | [-1, 1, 3] | 3
`nums[0...3]` | [-1, -2, 3, -1] | -1 | [-1, 1, 3, -1] | 2
`nums[1...3]` | [-2, 3, -1] | 0 | [1, 3, -1] | 3 Thus, `nums` is positive after one operation.

****Example 3:****

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

****Output:**** 0

****Explanation:****

The array is already positive, so no operations are needed.

****Constraints:****

* `3 <= nums.length <= 105` * `-109 <= nums[i] <= 109`

Code Snippets

C++:

```
class Solution {
public:
    int makeArrayPositive(vector<int>& nums) {
        }
};
```

Java:

```
class Solution {  
public int makeArrayPositive(int[] nums) {  
}  
}  
}
```

Python3:

```
class Solution:  
    def makeArrayPositive(self, nums: List[int]) -> int:
```