

5972. Count the Hidden Sequences

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You are given a **0-indexed** array of n integers `differences`, which describes the **differences** between each pair of **consecutive** integers of a **hidden** sequence of length $(n + 1)$. More formally, call the hidden sequence `hidden`, then we have that `differences[i] = hidden[i + 1] - hidden[i]`.

You are further given two integers `lower` and `upper` that describe the **inclusive** range of values `[lower, upper]` that the hidden sequence can contain.

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

- For example, given `differences = [1, -3, 4]`, `lower = 1`, `upper = 6`, the hidden sequence is a sequence of length 4 whose elements are in between 1 and 6 (**inclusive**).
 - `[3, 4, 1, 5]` and `[4, 5, 2, 6]` are possible hidden sequences.
 - `[5, 6, 3, 7]` is not possible since it contains an element greater than 6.
 - `[1, 2, 3, 4]` is not possible since the differences are not correct.

Return the number of **possible** hidden sequences there are. If there are no possible sequences, return 0.

Example 1:

Input: `differences = [1,-3,4]`, `lower = 1`, `upper = 6`
Output: 2
Explanation: The possible hidden sequences are:
- `[3, 4, 1, 5]`
- `[4, 5, 2, 6]`
Thus, we return 2.

Example 2:

Input: `differences = [3,-4,5,1,-2]`, `lower = -4`, `upper = 5`
Output: 4
Explanation: The possible hidden sequences are:
- `[-3, 0, -4, 1, 2, 0]`
- `[-2, 1, -3, 2, 3, 1]`
- `[-1, 2, -2, 3, 4, 2]`
- `[0, 3, -1, 4, 5, 3]`
Thus, we return 4.

Example 3:

Input: `differences = [4,-7,2]`, `lower = 3`, `upper = 6`
Output: 0
Explanation: There are no possible hidden sequences. Thus, we return 0.

Constraints:

- $n == \text{differences.length}$
- $1 \leq n \leq 10^5$
- $-10^5 \leq \text{differences}[i] \leq 10^5$
- $-10^5 \leq \text{lower} \leq \text{upper} \leq 10^5$

JavaScript

```
1 const preSum = (a) => { let pre = [0]; for (let i = 0; i < a.length; i++) { pre.push(pre[i] + a[i]); } return pre;
2 };
3 const numberOfArrays = (a, lower, upper) => {
```


```
4    let n = a.length, m = n + 1;
5    let pre = preSum(a);
6    pre.sort((x, y) => x - y);
7    let min = pre[0], max = pre[m - 1];
8    let l = lower - min, r = upper - max;
9    return Math.max(r - l + 1, 0);
10 };
```

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