2364. Count Number of Bad Pairs

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You are given a **0-indexed** integer array `nums`. A pair of indices `(i, j)` is a **bad pair** if `i < j` and `j - i != nums[j] - nums[i]`.

Return *the total number of* ***bad pairs*** *in* `nums`.

User Accepted:	5364
User Tried:	10121
Total Accepted:	5608
Total Submissions:	19591
Difficulty:	Medium

Example 1:

```
Input: nums = [4,1,3,3]
Output: 5
Explanation: The pair (0, 1) is a bad pair since 1 - 0 != 1 - 4.
The pair (0, 2) is a bad pair since 2 - 0 != 3 - 4, 2 != -1.
The pair (0, 3) is a bad pair since 3 - 0 != 3 - 4, 3 != -1.
The pair (1, 2) is a bad pair since 2 - 1 != 3 - 1, 1 != 2.
The pair (2, 3) is a bad pair since 3 - 2 != 3 - 3, 1 != 0.
There are a total of 5 bad pairs, so we return 5.
```

Example 2:

```
Input: nums = [1,2,3,4,5]
Output: 0
Explanation: There are no bad pairs.
```

Constraints:

- $1 <= nums.length <= 10^5$
- $1 <= nums[i] <= 10^9$

Discuss (https://leetcode.com/problems/count-number-of-bad-pairs/discuss)

JavaScript ▾   ⟨⟩ ⟳ ⚙

```javascript
 1 ▾ function Bisect() {
 2       return { insort_right, insort_left, bisect_left, bisect_right }
 3 ▾     function insort_right(a, x, lo = 0, hi = null) {
 4           lo = bisect_right(a, x, lo, hi);
 5           a.splice(lo, 0, x);
 6       }
 7 ▾     function bisect_right(a, x, lo = 0, hi = null) { // > upper_bound
 8           if (lo < 0) throw new Error('lo must be non-negative');
 9           if (hi == null) hi = a.length;
10 ▾         while (lo < hi) {
11               let mid = parseInt((lo + hi) / 2);
12               a[mid] > x ? hi = mid : lo = mid + 1;
13           }
14           return lo;
15       }
16 ▾     function insort_left(a, x, lo = 0, hi = null) {
17           lo = bisect_left(a, x, lo, hi);
18           a.splice(lo, 0, x);
19       }
20 ▾     function bisect_left(a, x, lo = 0, hi = null) { // >= lower_bound
21           if (lo < 0) throw new Error('lo must be non-negative');
22           if (hi == null) hi = a.length;
23 ▾         while (lo < hi) {
24               let mid = parseInt((lo + hi) / 2);
25               a[mid] < x ? lo = mid + 1 : hi = mid;
26           }
27           return lo;
28       }
29 }
30
```

```
31   const counter_value_in_indexA_in = (a_or_s) => { let m = new Map(); let n = a_or_s.length; for (let i = 0; i < n; i++) {
     if (!m.has(a_or_s[i])) m.set(a_or_s[i], []); m.get(a_or_s[i]).push(i); } return m; };
32
33   // num[i] - i = num[j] - j
34 ▾ const countBadPairs = (a) => {
35       let n = a.length, d = [], tot = n * (n - 1) / 2, bi = new Bisect(), res = 0;
36       for (let i = 0; i < n; i++) d.push(a[i] - i);
37       let m = counter_value_in_indexA_in(d);
38 ▾     for (let i = 0; i < n; i++) {
39           let ia = m.get(d[i]), idx = bi.bisect_right(ia, i), cnt = ia.length - idx;
40           res += cnt;
41       }
42       return tot - res;
43   };
```

☐ **Custom Testcase**   (Use Example Testcases)

                                                                    ⏵ Run   ☁ Submit

Submission Result: Accepted (/submissions/detail/767294304/) ❓   (More Details ❯ (/submissions/detail/767294304/))

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