codility

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PAINLESS

EquiLeader

START

Find the index S such that the leaders of the sequences A[0], A[1], ..., A[S] and A[S + 1], A[S + 2], ..., A[N - 1] are the same.

Programming language: C++ ▼

A non-empty zero-indexed array A consisting of N integers is given.

The *leader* of this array is the value that occurs in more than half of the elements of A.

An *equi leader* is an index S such that 0 ≤ S < N − 1 and two sequences A[0], A[1], ..., A[S] and A[S + 1], A[S + 2], ..., A[N − 1] have leaders of the same value.

For example, given array A such that:

```
    A[0] = 4
    A[1] = 3
    A[2] = 4
    A[3] = 4
    A[4] = 4
    A[5] = 2
```

we can find two equi leaders:

- 0, because sequences: (4) and (3, 4, 4, 4, 2) have the same leader, whose value is 4.
- 2, because sequences: (4, 3, 4) and (4, 4, 2) have the same leader, whose value is 4.

The goal is to count the number of equi leaders.

Write a function:

```
    int solution(vector<int> &A);
```

that, given a non-empty zero-indexed array A consisting of N integers, returns the number of equi leaders.

For example, given:

```
    A[0] = 4
    A[1] = 3
    A[2] = 4
    A[3] = 4
    A[4] = 4
    A[5] = 2
```

the function should return 2, as explained above.

Assume that:

- N is an integer within the range [1..100,000];
- each element of array A is an integer within the range [−1,000,000,000..1,000,000,000].

Complexity:

- expected worst-case time complexity is O(N);
- expected worst-case space complexity is O(N), beyond input storage (not counting the storage required for input arguments).

Elements of input arrays can be modified.

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