RESPECTABLE

MinAbsSumOfTwo

START

Find the minimal absolute value of a sum of two elements.

Programming language: C++

Let A be a non-empty zero-indexed array consisting of N integers.

The *abs sum of two* for a pair of indices (P, Q) is the absolute value $|A[P] + A[Q]|$, for $0 \le P \le Q < N$.

For example, the following array A:

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

has pairs of indices (0, 0), (0, 1), (0, 2), (1, 1), (1, 2), (2, 2).
The abs sum of two for the pair (0, 0) is $A[0] + A[0] = |1 + 1| = 2$.
The abs sum of two for the pair (0, 1) is $A[0] + A[1] = |1 + 4| = 5$.
The abs sum of two for the pair (0, 2) is $A[0] + A[2] = |1 + (-3)| = 2$.
The abs sum of two for the pair (1, 1) is $A[1] + A[1] = |4 + 4| = 8$.
The abs sum of two for the pair (1, 2) is $A[1] + A[2] = |4 + (-3)| = 1$.
The abs sum of two for the pair (2, 2) is $A[2] + A[2] = |(-3) + (-3)| = 6$.

Write a function:

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

that, given a non-empty zero-indexed array A consisting of N integers, returns the minimal abs sum of two for any pair of indices in this array.

For example, given the following array A:

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

the function should return 1, as explained above.

Given array A:

```
  A[0] = -8
  A[1] =  4
  A[2] =  5
  A[3] =-10
  A[4] =  3
```

the function should return |(−8) + 5| = 3.

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*log(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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