

AVAILABLE
LESSONS:*Lesson 1*
Iterations*Lesson 2*
Arrays*Lesson 3*
Time Complexity*Lesson 4*
Counting
Elements*Lesson 5*
Prefix Sums*Lesson 6*
Sorting*Lesson 7*
Stacks and
Queues*Lesson 8*
Leader*Lesson 9*
Maximum slice
problem*Lesson 10*
Prime and
composite
numbers*Lesson 11*

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 $0 \leq P \leq Q < N$.

For example, the following array A:

$$\begin{aligned} A[0] &= 1 \\ A[1] &= 4 \\ A[2] &= -3 \end{aligned}$$

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:

$$\begin{aligned} A[0] &= 1 \\ A[1] &= 4 \\ A[2] &= -3 \end{aligned}$$

the function should return 1, as explained above.

Sieve of
Eratosthenes

Lesson 12

Euclidean
algorithm

Lesson 13

Fibonacci
numbers

Lesson 14

Binary search
algorithm

Lesson 15

**Caterpillar
method**

Lesson 16

Greedy
algorithms

Lesson 17

Dynamic
programming

Lesson 90

Tasks from
Indeed Prime
2015 challenge

Lesson 91

Tasks from
Indeed Prime
2016 challenge

Lesson 92

Tasks from
Indeed Prime
2016 College
Coders
challenge

Lesson 99

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 $O(N \cdot \log(N))$;
- 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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