

Vials

In the lab, you have a sequence of N sealed vials, indexed from 0 to $N - 1$. Each vial i currently holds a liquid compound kept at a temperature of $A[i]$. The temperatures can be negative.

To adjust the temperatures, you can perform a heat transfer operation. In one operation, you choose two distinct indices i and j ($0 \leq i, j < N$, $i \neq j$) and perform both of the following updates:

- increase $A[i]$ by 1;
- decrease $A[j]$ by 1.

A chemical reaction requires two vials of this compound at the exact same temperature. Your task is to find the minimum number of heat transfer operations required so that there are two distinct indices i and j ($0 \leq i, j < N$, $i \neq j$) for which $A[i] = A[j]$.

If it is impossible to make two vials equal in temperature, return -1 .

Implementation Details

You should implement the following procedure.

```
int32 min_operations(int32[] A)
```

- A : an array of N integers describing the initial sequence.
- This procedure should return the minimum required number of operations, or -1 if it is impossible to make two elements equal.
- This procedure is called exactly once for each test case.

Constraints

- $2 \leq N \leq 200\,000$
- $-10^9 \leq A[i] \leq 10^9$ for every $0 \leq i < N$

Subtasks

Subtask	Score	Additional Constraints
1	8	$A[i] = 0$ for each $0 \leq i < N$
2	14	$N = 2$
3	14	$N = 3$
4	24	$3 \leq N \leq 100$
5	15	$A[i] = i$ for each $0 \leq i < N$
6	25	No additional constraints.

Examples

Example 1

Consider the following call.

```
min_operations([1, 4, 10])
```

This procedure should return 2.

One way to use two operations is:

1. choose $i = 0$ and $j = 2$, obtaining $[2, 4, 9]$;
2. choose $i = 0$ and $j = 1$, obtaining $[3, 3, 9]$.

Example 2

Consider the following call.

```
min_operations([0, 5])
```

It is not possible to have two vials with the same temperature, so the procedure should return -1 .

Example 3

Consider the following call.

```
min_operations([7, -2, 7, 100])
```

This procedure should return 0, because two vials already have equal temperature.

Sample Grader

The sample grader reads the input in the following format:

```
N  
A[0] A[1] ... A[N-1]
```

The sample grader outputs the return value of `min_operations` in the following format:

```
R
```