Lily's Homework

Whenever George asks Lily to hang out, she's busy doing homework. George wants to help her finish it faster, but he's in over his head! Can you help George understand Lily's homework so she can hang out with him?

Consider an array of n distinct integers, $A = [a_0, a_1, \ldots, a_{n-1}]$. George can swap any two elements of the array any number of times. An array is *beautiful* if the sum of $|a_i - a_{i-1}|$ among $0 < i < n$ is minimal possible (after, possibly, performing some swaps).

Given the array A, find and print the minimum number of swaps that should be performed in order to make the array *beautiful*.

Input Format

The first line contains a single integer, n, denoting the number of elements in the array A.
The second line contains n space-separated integers describing the respective distinct values of $a_0, a_1, \ldots, a_{n-1}$.

Constraints

- $1 \leq n \leq 10^5$
- $1 \leq a_i \leq 2 \times 10^9$

Output Format

Print the minimum number of swaps that should be performed in order to make the array *beautiful*.

Sample Input

```
4
2 5 3 1
```

Sample Output

```
2
```

Explanation

Let's define array $B = [1, 2, 3, 5]$ to be the beautiful reordering of array A, as the sum of the absolute values of differences between its adjacent elements is minimal among all permutations and only two swaps (1 with 2 and then 2 with 5) was performed.