Minimum Sum of a Sorted Pair (Hard Version)

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	256 megabytes

The only difference between the two versions of the problem is the size of the given array.

You are give an array $a_1, a_2, \ldots, a_n$. A pair (i, j) is considered sorted if:

- $1 \leq i < j \leq n$
- And $a_i < a_j$

Among all sorted pairs your task is to find one with the minimum sum $a_i + a_j$.

If there is no pair satisfying the inequality print -1, otherwise print the value of the minimum sum.

Input

The first line of the input contains a single integer n ($1 \leq n \leq 10^5$), the size of the array.

The second line contains n integers $a_1, a_2, \ldots, a_n$ ($1 \leq a_i \leq 10^9$).

Output

One single integer, the minimum pair sum, or -1 if there are no sorted pairs.

Examples

standard input	standard output
6 11 2 5 3 10 1	5
5 5 4 3 2 1	-1

Note

In the first testcase all the sorted pairs are: (2-nd, 3-rd), (2-nd, 4-th), (2-nd, 5-th), (3-rd, 5-th) and (4-th, 5-th). The one that has the minimum sum is the pair (2-nd, 4-th) with sum $2 + 3 = 5$.

In the second testcase, there is no sorted pair in the array, so the answer will be -1.