Stable sort

Cost: 12 | Solved: 120

Memory limit: 256 MBs

Time limit: 1 s

Input: input.txt

Output: output.txt

Task:

You are given an array of ***n*** integers.

You have to write the stable sort implementation for this array. The complexity of the program must not be greater than O(n*log(n)).

Stable sort is a sorting that doesn't change the relative order of the elements that have equal value. For example, the array 8 4 2 1 2 9 after sorting will look like that: 1 2 2 4 8 9. Pay attention to the fact that we wouldn't swap the first and the second 2's using the stable sort implementation. Thus in the end the 2 which had the index [3] will stand before the 2 which was at the position [5].

Input:

The first line contains a natural ***n*** ($1 \le n \le 10^5$) **–** the quantity of elements of the array.

The second line contains ***n*** numbers **–** the elements of the array.

Output:

The sorted array.

Example:

Input	Output

9 97-130-51-13	-5-1-1013379