

Basic Sorting with Custom Order

Given a sequence of n integers a_1, a_2, \dots, a_n . Sort it in descending order of absolute value ($|a^1| \geq |a^2| \geq \dots \geq |a^n|$). Note that if two items have the same absolute value, the positive one comes first in the list.

Input

Line 1: contains the integer n ($1 \leq n \leq 10^3$).

Line 2 to $n + 1$: $(i + 1)$ -th line contains the integer a_i ($|a_i| \leq 10^9$)

Output

Line 1 to n : each line contains each item of the sequence in desired order.

Example

Input:

```
3
1
3
2
```

Output:

```
3
2
1
```