

Sorting by frequency

1 second, 128MB

You are given a list of N integers ($1 \leq N \leq 100,000$). Some integer may appear more than once. You would like to output a new list of *distinct* integers, sorted by their frequency from the most frequent integers to the least frequent. For integers with the same frequency, order them by their values from smaller to larger values.

Consider the following example with $N = 10$. There are 10 integers:

5, 4, 1, 1, 4, 4, 5, 6, 10, 3

The frequency of 4 is 3. The frequencies of 1 and 5 are 2. The other integers appear once (i.e., their frequencies are 1).

The output should be

4, 1, 5, 3, 6, 10

There are 50% of test cases with $N \leq 1,000$ and each integer is between 1 and 10,000.

Input

The first line of input contains an integer N ($1 \leq N \leq 100,000$). The next N lines contain the list of N integers, each integer is between 1 and 1,000,000.

There are 50% of test cases with $N \leq 1,000$ and each integer is between 1 and 10,000.

Output

The output should be a list of integers sorted by their frequencies, one integer per line.

Example

Input	Output
10	4
5	1
4	5
1	3
1	6
4	10
4	
5	
6	
10	
3	