



Minimum Permutation

Time limit: 1000 ms
Memory limit: 256 MB

You are given an array A of size N and a set S with M elements. Each number from 1 to $N + M$ occurs exactly once in either A or S .

You need to insert the elements from the set S into the array A in order to obtain the lexicographically smallest permutation.

Note: A Sequence $X_{1..n}$, of the same length as a sequence $Y_{1..n}$, is considered lexicographically smaller than $Y_{1..n}$ if, and only if, there exists an index j for which $X_i = Y_i$ for $1 \leq i < j$, and $X_j < Y_j$.

Standard input

The first line contains the numbers N and M . The second line contains N integers corresponding to the elements of A . The third line contains M integers corresponding to the elements of S .

Standard output

The output should contain the elements of the lexicographically smallest permutation, separated by single spaces.

Constraints and notes

- $1 \leq N \leq 10^5$
- $1 \leq M \leq 10^5$
- $2 \leq N + M \leq 10^5$
- All the elements are unique and between 1 and $N + M$

Input	Output	Explanation
<pre>3 2 3 1 5 4 2</pre>	<pre>2 3 1 4 5</pre>	<p>The array is $[3, 1, 5]$ and the set is $\{4, 2\}$.</p> <p>The first operation is to insert 2 at the beginning of the array, obtaining $[2, 3, 1, 5]$.</p> <p>The second operation is to insert 4 right after 1, obtaining $[2, 3, 1, 4, 5]$.</p>