Johnny, like every mathematician, has his favorite sequence of **distinct** natural numbers. Let's call this sequence M. Johnny was very bored, so he wrote down N copies of the sequence M in his big notebook. One day, when Johnny was out, his little sister Mary erased some numbers(possibly zero) from every copy of M and then threw the notebook out onto the street. You just found it. Can you reconstruct the sequence?

In the input there are N sequences of natural numbers representing the N copies of the sequence M after Mary's prank. In each of them all numbers are **distinct**. Your task is to construct the shortest sequence S that might have been the original M. If there are many such sequences, return the lexicographically smallest one. It is guaranteed that such a sequence exists.

Note
Sequence $A[1 \dots n]$ is lexicographically less than sequence $B[1 \dots n]$ if and only if there exists $1 \leq i \leq n$ such that for all $1 \leq j < i, A[j] = B[j] \ \ and \ \ A[i] < B[i]$.

Input Format

In the first line, there is one number N denoting the number of copies of M.
This is followed by K
and in next line a sequence of length K representing one of sequences after Mary's prank. All numbers are separated by a single space.

Constraints
$1 \leq N \leq 10^3$
$2 \leq K \leq 10^3$
All values in one sequence are **distinct** numbers in range $[1, 10^6]$.

Output Format

In one line, write the space-separated sequence S - the shortest sequence that might have been the original M. If there are many such sequences, return the lexicographically smallest one.

Sample Input

```
2
2
1 3
3
2 3 4
```

Sample Output

```
 1 2 3 4
```

Explanation

You have 2 copies of the sequence with some missing numbers: $[1, 3]$ and $[2, 3, 4]$. There are two candidates for the original sequence $M : [1, 2, 3, 4] \ and \ [2, 1, 3, 4]$, where the first one is lexicographically least.