Favorite sequence



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 $1 \le i \le n$ such that for all $1 \le j < i, A[j] = B[j]$ 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 $oldsymbol{K}$

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

 $1 < N < 10^3$

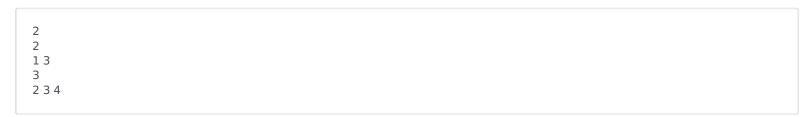
 $2 \le K \le 10^3$

All values in one sequence are ${\it distinct}$ 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



Sample Output

1234

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.