I. Different variables

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

N variables $X_1, ..., X_N$ can have positive integer values. You are given K constraints for these value that look like "the values of variables $X_{i_1}, X_{i_2}, ..., X_{i_M}$ are different". Among all possible lists of values of these variables that satisfy these constraints select the ones which have minimum possible $max(X_i)$. Output lexicographically least of these lists.

Input

The first line of input contains two integers n and k ($2 \le N \le 10$, $1 \le K \le 100$) — the number of variables and the number of constraints.

The following K lines contain the constraints, formatted as follows: the first number in the line M ($2 \le M \le N$) gives the number of variables in the constraint. After it follow M space-separated integers $i_1, ..., i_M$ — the indices of the variables used in the constraint ($1 \le i_j \le N$). All i_j in one constraint are different.

Output

Output the values of $X_1, X_2, ..., X_N$ in a single line, separated with single spaces.

Examples

input
2 1 2 1 2

output
1 2

input
3 2 2 1 2 2 2 3

output
1 2 1