Problem F
Investigating Imposters
Time Limit: 1 Second

You have stumbled upon a village. In this village, some of the people are "imposters", while the rest are not. Fortunately, you know that the number of possible imposters is limited!

You would like to determine who is not an imposter in this village. To do so, you ask each villager to submit a list of some villagers who are not imposters.

Non-imposters will only submit lists that contain other non-imposter names, while there is no such restriction for imposters. Imposters' lists could contain imposters or non-imposters.

Given the lists of each villager, determine whether they could possibly be an imposter, or are definitely not an imposter.

Input

The first line of input contains two space-separated integers n and k ($1 \leq k \leq n \leq 500$), where n is the number of villagers and k is the maximum possible number of imposters. The villagers are numbered from 1 to n.

Each of the next n lines describes a villager, where the i^{th} line represents the list of villager i. The i^{th} line starts with an integer s ($0 \leq s \leq n$), which is the number of people on villager i's list of non-imposters. Then there will follow s distinct integers denoting the villagers on villager i's list of non-imposters. It is possible for a villager to appear on their own list. All of the villagers on any given list will be distinct.

Output

Output n lines, each with a single integer. The i^{th} line should contain 0 if the villager represented by the i^{th} list in the input could possibly be an imposter, and 1 if that villager is definitely not an imposter.

Sample Input 1	Sample Output 1
4 1 1 2 1 1 1 3 1 4	1 1 0 0