

NORELA

Maximum time of execution: 0.6 seconds/test.

Maximum available memory: 512 MB

Adrian the 3rd is a wizard prince. On International Wizard's Day (4th of November) he wanted to impress Norela, his dream girl. He has n playing cards, which are initially put with the face down on a table. Adrian can use m spells, a spell has the format: $q \ a_1 \ a_2 \ \dots \ a_q$. If Adrian uses a spell, the playing cards with the indices $a_1 \ a_2 \ \dots \ a_q$ will be turned in order. (Integers $a_1 \ a_2 \ \dots \ a_q$ are all different). The card will be turned face up if it is face down and will be turned face down if it is face up and all spells can be used no more than one time. Help Adrian impress Norela before his nemesis Manea Long Eyebrow does it!

TASK

Find the minimum number of spells that have to be used to turn all n cards face up, also determinate the indices of the used spells. If there are more solutions, **print the minimum lexicographical answer.**

INPUT FORMAT

The first line contains two integers n and m .

The next m lines contain the description of every spell $q \ a_1 \ a_2 \ \dots \ a_q$, where q is the number of cards that will be turned by that spell and $a_1 \ a_2 \ \dots \ a_q$ are the indices of those cards.

OUTPUT FORMAT

The first line will contain only one integer representing the minimum number of used spells and the second line will contain the indices of those spells. If there are more solutions with minimum number of used spells, there will be printed the **minimum lexicographical answer.**

SUBTASKS

- A set of integers $a_1 \ a_2 \ \dots \ a_n$ is lexicographically smaller than other set $b_1 \ b_2 \ \dots \ b_n$ if there is a k between 1 and n so that $a_1=b_1, a_2=b_2, \dots, a_{k-1} = b_{k-1}$ si $a_k < b_k$.

Subtask	Score	Restrictions
1	20 points	$n \leq 40 \ m \leq 18$
2	Another 30 points	$n \leq 50 \ m \leq 21$
3	Another 25 points	$n \leq 60 \ m \leq 22$
4	Another 25 points	$n \leq 60 \ m \leq 24$

EXEMPLU:

Input:

5 6
3 1 3 4
2 3 5
2 2 3
3 1 2 5
1 1
4 1 2 3 4

Output:

3
1 2 3

Using the spells with indices 1,2 and 3 (1 3 4, 3 5 and 2 3) will turn all cards face up.
It can be observed that another solution that turns all cards face up is 1,4 and 5, but this one is lexicographically bigger.