Southeastern European Regional Programming Contest
Bucharest, Romania – Vinnytsya, Ukraine
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Problem D
Harry Potter and The Vector Spell

Input File: D.in
Output File: standard output
Time Limit: *1* second (C/C++)
Memory Limit: *256* megabytes

Harry Potter has found another strange spell in Half-blood Prince diary, that could generate a different binary vector of size **M**. As he is not the best magician, this spell does not work perfectly so he could generate only vectors where exactly **2** elements are non zero.
Harry has used this spell **N** times and he has constructed a matrix of M rows and N columns, where all generated vectors are columns.

Now Harry has a class of Magical Matrix Theory, where the professor asked him to calculate the rank of such a matrix. You are here to help him!

Operations in Magical Matrix Theory satisfied next rules:

+	0	1
0	0	1
1	1	0

*	0	1
0	0	0
1	0	1

The rank of a matrix A corresponds to the maximal number of linearly independent columns of A.
The vectors in a set $T = \{\overrightarrow{v_1}, \overrightarrow{v_2}, \ldots, \overrightarrow{v_k}\}$ are said to be linearly independent if the equation $a_1\overrightarrow{v_1} + a_2\overrightarrow{v_2} + \ldots + a_k\overrightarrow{v_k} = \vec{0}$, where $a_i = \{0,1\}$ for $i = 1, \ldots, k$ can only be satisfied by $a_i = 0$ for $i = 1, \ldots, k$.

Input
On the first line two integers - **M** (size of vectors) and **N** (number of vectors generated by Harry).
Each of the next **M** lines has the format: $k_i\ c_1\ c_2 \ldots c_{k_i}$, where k_i is the number of non-zero elements in row i. The next k_i numbers are column indexes ($1 <= c_j <= N, j = 1, \ldots, k_i$), which are non-zero in this row. For more details, see examples.
$1 <= N <= 10^5$
$2 <= M <= 10^5$
$0 <= k_i <= N$

Output

Sample input 1	Sample output 1
3 3 2 1 3 2 1 2 2 2 3	2

Sample input 2	Sample output 2

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

In first example, Harry has generated 3 vectors:

$$\overrightarrow{v_1} = (1, 1, 0), \overrightarrow{v_2} = (0, 1, 1), \overrightarrow{v_3} = (1, 0, 1)$$

and the matrix is:

$$\begin{bmatrix} 1 & 0 & 1 \\ 1 & 1 & 0 \\ 0 & 1 & 1 \end{bmatrix}$$

But $\overrightarrow{v_1} + \overrightarrow{v_2} + \overrightarrow{v_3} = \vec{0}$.