A. Learning Languages

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

The "BerCorp" company has got n employees. These employees can use m approved official languages for the formal correspondence. The languages are numbered with integers from 1 to m. For each employee we have the list of languages, which he knows. This list could be empty, i. e. an employee may know no official languages. But the employees are willing to learn any number of official languages, as long as the company pays their lessons. A study course in one language for one employee costs 1 berdollar.

Find the minimum sum of money the company needs to spend so as any employee could correspond to any other one (their correspondence can be indirect, i. e. other employees can help out translating).

Input

The first line contains two integers n and m ($2 \le n, m \le 100$) — the number of employees and the number of languages.

Then n lines follow — each employee's language list. At the beginning of the i-th line is integer k_i ($0 \le k_i \le m$) — the number of languages the i-th employee knows. Next, the i-th line contains k_i integers — a_{ij} ($1 \le a_{ij} \le m$) — the identifiers of languages the i-th employee knows. It is guaranteed that all the identifiers in one list are distinct. Note that an employee may know zero languages.

The numbers in the lines are separated by single spaces.

Output

Print a single integer — the minimum amount of money to pay so that in the end every employee could write a letter to every other one (other employees can help out translating).

Examples

input
5 5 1 2 2 2 3 2 3 4 2 4 5 1 5

output
0

input
8 7 0 3 1 2 3 1 1 2 5 4 2 6 7 1 3 2 7 4 1 1

output
2

input
2 2 1 2 0

→ Attention

Package for this problem was not updated by the problem writer or Codeforces administration after we've upgraded the judging servers. To adjust the time limit constraint, solution execution time will be multiplied by 2. For example, if your solution works for 400 ms on judging servers, then value 800 ms will be displayed and used to determine the verdict.

Codeforces Round #170 (Div. 1)

Finished

→ Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ACM-ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

→ Problem tags

dfs and similar dsu

No tag edit access

→ Contest materials

- Announcement
- Tutorial

output
1

Note

In the second sample the employee 1 can learn language 2, and employee 8 can learn language 4.

In the third sample employee 2 must learn language 2.
