

Problem

Merge Sequence

Time limit: 2 seconds

Little Cyan Fish has m sequences consisting of n integers in total. Each integer from 1 to n occurs exactly once across all the sequences.

He wants to merge these sequences into a permutation p of length n . Initially, p is empty. In each step, he chooses a nonempty sequence, removes its first integer, and appends this integer to the end of p . He repeats this until all the sequences are empty.

An integer is called a fixed point of p if its value equals its position in p . Positions are numbered from 1 to n .

Find the minimum possible number of fixed points in p .

Input

There are multiple test cases. The first line of the input contains a single integer T ($1 \leq T \leq 10^6$), indicating the number of test cases.

For each test case, the first line contains two integers n and m ($1 \leq m \leq n \leq 10^6$), indicating the total number of integers and the number of sequences, respectively.

The next m lines describe the sequences. The i -th of these lines contains an integer k_i ($1 \leq k_i \leq n$), followed by k_i integers $a_{i,1}, a_{i,2}, \dots, a_{i,k_i}$ ($1 \leq a_{i,j} \leq n$), describing the i -th sequence in order.

It is guaranteed that the sum of k_i over all sequences in each test case is n , and that each integer from 1 to n occurs exactly once across all the sequences.

It is guaranteed that the sum of n over all test cases does not exceed 10^6 , and the sum of m over all test cases does not exceed 10^6 .

Output

For each test case, output a single line containing a single integer, indicating the minimum possible number of fixed points in p .

Sample Input 1

4	1
1 1	0
1 1	1
3 2	0
1 1	
2 2 3	
3 2	
2 1 3	
1 2	
4 2	
3 2 1 3	
1 4	

Sample Output 1

In the first sample test case, the only possible permutation is $[1]$, which has one fixed point.

In the second sample test case, Little Cyan Fish can obtain $p = [2, 3, 1]$, which has no fixed points.

In the third sample test case, $p = [1, 3, 2]$ is an optimal permutation with one fixed point.

In the fourth sample test case, he can obtain $p = [2, 4, 1, 3]$, which has no fixed points.