Problem D. Too Simple

Input file:	*standard input*
Output file:	*standard output*
Time limit:	1 second
Memory limit:	64 mebibytes

Rhason Cheung had a simple problem, and asked Teacher Mai for help. But Teacher Mai thought this problem was too simple, sometimes naive. So she ask you for help.

Teacher Mai has m functions $f_1, f_2, \ldots, f_m : \{1, 2, \ldots, n\} \to \{1, 2, \ldots, n\}$ (that means for all $x \in \{1, 2, \ldots, n\}$, $f(x) \in \{1, 2, \ldots, n\}$). But Rhason only knows some of these functions, and others are unknown.

She wants to know how many different function series $f_1, f_2, \ldots, f_m$ there are that for every i $(1 \le i \le n)$, $f_1(f_2(\ldots f_m(i))) = i$. Two function series $f_1, f_2, \ldots, f_m$ and $g_1, g_2, \ldots, g_m$ are considered different if and only if there exist i $(1 \le i \le m)$,$j(1 \le j \le n)$,$f_i(j) \ne g_i(j)$.

Input

First line of the input contains one integer T $(1 \le T \le 50)$.

For each test case, the first lines contains two numbers n and m $(1 \le n, m \le 100)$.

Then m lines follow. In i-th line, there is one number -1 or n space-separated integers. If there is only one number -1, the function f_i is unknown. Otherwise the j-th number in the i-th line means $f_i(j)$.

Output

For each test case print the answer modulo $10^9 + 7$.

Example

standard input	standard output
1 3 3 1 2 3 -1 3 2 1	1