Piggy Sort

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	1024 megabytes

Piggy sort? I thought it was a pork order.

— Cyno, The General Mahamatra

Putata and Budada proposed a new algorithm, Piggy Sort. This algorithm can easily sort n real numbers through the following process:

- Assume that the sequence needs to be sorted is $v_1, v_2, \ldots, v_n$, which are n non-negative real numbers.
- Putata and Budada carefully select n piggies from Pigetown, where the speeds of the n piggies are exactly $v_1, v_2, \ldots, v_n$. Pigetown can be described using a coordinate axis. The i-th piggy was initially located at coordinate x_i. The initial coordinates of the piggies are **pairwise distinct**.
- All the piggies begin to run at the same time. After t seconds, the i-th piggy is at coordinate $x_i + v_i \cdot t$. Notice that the speed could be zero, which means the piggy does not move at all.
- After a considerable amount of time, the order of the piggies on the coordinate axis is the (sorted) order of the sequence $v_1, v_2, \ldots, v_n$.

Putata and Budada conducted an experiment to verify the correctness of the algorithm. However, time is money. A very long waiting time is impractical. As an alternative, they took m pictures of the piggies. To ensure an adequate amount of experimental data, they ensured that the number of photos is more than the number of elements in the array, which means m is **greater than** n.

Unfortunately, much of the information in the photos was damaged. They could get the following information from the pictures:

- The first picture was taken at time 0, while the times where the other pictures were taken are unable to be distinguished. The pictures were taken at **distinct** times.
- The coordinate of the piggies in the i-th picture are $x_{i,1}, x_{i,2}, \ldots, x_{i,n}$, while the piggies are unable to be distinguished.

Please, help Putata and Budada figure out the experiment result. You should find a sequence $r_1, r_2, \ldots, r_n$, which is the rank of the speed of the piggy with the i-th smallest coordinate in the first picture. You should guarantee $r_i < r_j$ if and only if $(v_i < v_j) \vee ((v_i = v_j) \wedge (x_{1,i} < x_{1,j}))$, and $r_1, r_2, \ldots, r_n$ is a permutation of $1, 2, \ldots, n$.

Input

The input contains multiple test cases. The first line contains an integer t ($1 \le t \le 250$), denoting the number of test cases.

For each test case, the first line contains two integers n, m ($1 \le n < m \le 500$), denoting the length of the array and the number of pictures.

The i-th of the following m lines contains n integers, the j-th of which denotes $x_{i,j}$ ($-10^7 \le x_{i,j} \le 10^7, x_{i,j} \le x_{i,j+1}$), which is the position of a piggy in the i-th picture. It is guaranteed that $x_{1,u} \neq x_{1,v}$ if $u \neq v$.

It is guaranteed that the sum of m does not exceed 500.

Output

For each test case, output n integers in one line, denoting $r_1, r_2, \ldots, r_n$.

You should guarantee that $r_1, r_2, \ldots, r_n$ is a permutation of $1, 2, \ldots, n$. If there are multiple answers, output any.

Example

standard input	standard output
3 2 4 1 2 3 4 5 6 7 8 1 2 1 1 3 4 1 2 3 6 9 9 10 15 17 12 18 21	1 2 1 3 1 2