10 Tree

10.1 Problem Description

You are given a directed graph with n vertices and m edges. The vertices are numbered from 1 to n.

For each vertex i, find out the number of ways to choose exactly $n-1$ edges to form a tree, where all the other $n-1$ vertices can be reached from i through these $n-1$ edges.

10.2 Input

The first line contains a single integer $T(1 \leq T \leq 100)$ - the number of test cases.

For each test case:

The first line contains two integers $n, m(1 \leq n \leq 500, 0 \leq m \leq n \times (n-1))$ - the number of vertices and the number of edges.

The next m lines, each line contains two integers $x, y(1 \leq x, y \leq n, x \neq y)$, denoting an edge. It is guaranteed that all the edges are different.

It is guaranteed that there are no more than 3 test cases with $n > 100$.

It is guaranteed that there are no more than 12 test cases with $n > 50$.

10.3 Output

For each test case, output n integers in a line, the i-th integer denotes the answer for vertex i. Since the answer may be too large, print it after modulo $10^9 + 7$.

Please do not have any space at the end of the line.

10.4 Sample Input

```
2
1 0
7 12
1 3
2 1
1 4
5 1
4 7
6 5
2 3
4 6
3 1
6 4
7 1
1 2
```

10.5 Sample Output

```
1
2 3 1 4 2 6 2
```