Adjacency List

The Problem

Construct the adjacency list representation of an unweighted undirected graph.

The Input

The first line of input will be a number on a line by itself which is the number of test cases to run. For each test case, the first line will be two numbers separated by a space *N* and *M*, where *N* (1 <= *N* <= 5000) is the number of nodes in the graph and *M* (1 <= M <= 10000) is the number of edges. The graph nodes will be numbered 0 to N-1. Each of the next M lines contain 2 numbers *A* and *B* separated by a space representing an edge in the graph between A (0 <= A < N) and B (0 <= B < N).

The Output

For each test case, output the test case number on a line followed by the adjacency list representation of the graph. For each node n in the graph output a line listing the number of the node followed by a colon and a space, then a comma and single space separated list of the nodes adjacent to n. The adjacent nodes should be listed in ascending order. See the example output below.

Sample Input

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

Sample Output

```
1
0: 1, 2
1: 0, 2
2: 0, 1, 3
3: 2
2
0: 1, 2, 3
1: 0
2: 0, 3
3: 0, 2
```