

Adjacency Lists

Read in a directed graph which has been described as a list of edges and output the sorted adjacency list for the graph as shown.

Input format

Each vertex will be represented as a number from 0 to n-1 for n vertices.

The first line of input will state how many vertices are in the graph

Each subsequent line will consist of pairs of numbers each describing an edge. The first number in the pair describes the vertex from where the edge originates and the second number states the vertex where the edge leads to.

The list will end in a -1 -1 pair which is not to be included as an edge.

Output format

Each vertex shall be printed at the start of a new line, followed by a colon : and a sorted, space separated, list of adjacent vertices

SAMPLE INPUT	SAMPLE OUTPUT
3	0: 1 2
0 1	1: 0 2
1 0	2: 0
1 2	
0 2	
2 0	
-1 -1	

Exercise

Modify your program to interpret the data as describing an undirected graph