Adjacent list

Time limit: 2 sec.
Memory limit: 64MB

Description

A *graph* is a mathematical model that represents an objects and relationship among them. A graph consists of *vertices* (plural of *vertex*) and *edges* among them, which can be formally expressed as G=(V,E). This means that a graph G is a pair of V and E, where V is the set of vertices and E is the set of edges. The size of V, ¦V¦, means the number of vertices and the size E, ¦E¦, means the number of edges. A vertex is usually represented by a circle or a point, and an edge is usually represented by a line between them.

(Above paragraph is shared with the problem "Adjacent matrix")

An adjacent list is one of the basic ways to represent a graph. Let's begin with a simple example.

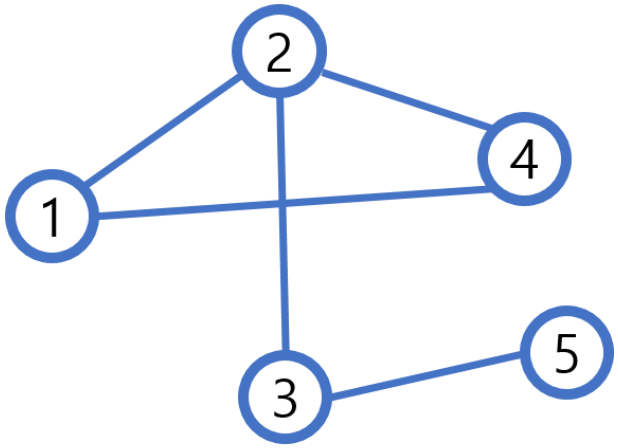

Figure 1) An undirected graph G=(V,E), where |V|=5

Figure 1 shows a graph G=(V,E) with 5 vertices (or ¦V¦=5). The corresponding adjacent list L is shown below.

$$L[1] = \{2,4\}$$
$$L[2] = \{1,3,4\}$$
$$L[3] = \{2,5\}$$
$$L[4] = \{1,2\}$$
$$L[5] = \{3\}$$

Did you notice the relationship between G and L? L[i] contains j if and only if there is an edge between vertex i and j.

Adjacent list is a very space-efficient data structure, especially in a sparse graph (A graph where the number of edges are relatively small).

Now it's time to construct an adjacent list. You will be given an undirected graph with n vertices and m edges. The vertices are numbered from 1 to n. Construct the respective adjacent matrix.

Input

The first line of the input contains integers n and m, the number of vertices and the number of edges. (1 <= n <= 200000, 1 <= m <= 300000)

The i-th line of the next m line of the input contains integers x_i and y_i, denoting that an edge exists between vertex x_i and y_i. (1 <= x_i,y_i <= n)

It is guaranteed that there are no multiple edges or self-loops.

Output

Print the respective adjacent list. Sort each line in the increasing order of vertex number, to make the adjacent list unique. And also, for isolated vertices(vertices with no edges connected), print "Isolated". Refer to the "Sample I/O" section for a better understanding.

Sample I/O

Input(s)	Output(s)
6 5 1 2 1 4 2 3 2 4 3 5	2 4 1 3 4 2 5 1 2 3 Isolated