Programming assignment 7

Connected component

Implement depth-first search that identifies the connected components of undirected graph G. During the DFS procedure, visit the vertex with smaller vertex number first, and the component number starts from 1.

Input (Standard input)

In the first line, the number of vertices N ($1 \leq N \leq 1,000$) is given.

From the next line, the adjacency list of graph G is represented as the two integers x, y.

This means the edge from vertex x to vertex y exists..

Output (Standard output)

In the first line, print the number of connected components.

In the next N lines, print the component number of each vertex.

[Example]

Input	Output
6 1 2 1 4 2 5 3 6	2 1 1 2 1 1 2

Description

1. File name must be Connected_component.cpp

2. Make the comment of student ID, name and class in the first line of the source code.

ex) 2008601028_Honggildong_A or 2008601028_홍길동_A

3.Please keep the source code that you have submitted for unexpected accident.