

13-th Bulgarian National Olympiad in Informatics

May 3 and 4, 1997

Problem 1. Executive body.

A company has N ($1 \leq N \leq 100$) members, denoted by $1, 2, \dots, N$. About some pairs (i, j) of members we know, that the member i is able to argue the member j into accepting of any decision concerning company policy. In this case we say that the member i dominates the member j . If i dominates j , this does not necessarily imply that j dominates i . But, if i dominates j and j dominates k , we assume that i dominates k . Write a program for choosing an executive body of the company, containing a minimal number of members, in such a way, that for any member m of the company there exists at least one member of the executive body, which dominates m .

Input data are read from a text file INP. At first position of the first row in this file an integer N is given. At first position in each next row a pair (i, j) is given as two integers, divided by a space. The file ends by a row containing 0 0.

Output must be written into a text file OUT and this file must contain one integer at the beginning of each row. At the first row, this integer must be equal to the minimal count of members in the executive body, whereas at the following rows, member's numbers must be consequently written in their ascending order.

An example:

Input	Output
7	2
1 5	1
1 7	2
2 3	
2 6	
3 5	
4 5	
5 6	
7 1	
7 4	
0 0	

Source: Matematika i informatika, journal published by Bulgarian Ministry of Education, n. 3-4, 1997, pp. 82-87.

© The text is translated from Bulgarian by [Emil Kelevedzhiev](#).

[Return](#) to the Home Page of Bulgarian Mathematics and Informatics Competitions.

Retrieved from <http://www.math.bas.bg/bcni/noi97.html>.