Partial Ordering

There are many applications, such as project management, when activities have a partial order. One thing must come before another. For example:

- A must come before B
- B must come before C
- D must come before E
- E must come before C

A possible order of the activities that meets all the required partial orderings is A B D E C although D A E B C and others also meet the requirements.

You are to design a program that reads in a list of partial orderings and prints a list of the activities in an order that maintains all of the partial orderings. Note that there are no cycles in the partial orderings, such as X comes before Y, Y comes before Z and Z comes before X.

The input will be a list of partial ordering of activities. The first line will give the number of partial orderings that will follow. There will be no more than 100 partial orderings. Each activity will be identified by a single upper case letter. There will be no more than 26 different activities. Each line of input will contain two letters separated by one space indicating that the first activity must come before the second activity.

Example input
A B
B C
D E
E C

Example output
A B D E C