Topological Sort

Time limit: 1 sec

You are a planning engineer of one electronic factor building a new electronic gadget. The production consists of N activities (numbered 0 to N-1). For each activity, there might be some prerequisite activities. An activities cannot be done if its prerequisite activities have not been completed.

Your task is to find the order of activities that should be done such that no activity is performed before its prerequisite activities are done.

Input

- The first line of input contains one integer **N** (1 ≤ N ≤ 1,000)
- The next **N** lines describe prerequisites of each activity starting from activity 0 to activities **N**-1 using the following format.
  - There are **M**+1 integers in each line. The first integer is **M** itself. The **M** following integers describe the prerequisite activities of this activity.

Output

The output must be a list of activities in the order that no activity is performed before its prerequisite activities are done. There might be more than one possible list, you can output any list.

Example

Input	Possible Output
4 0 0 0 0	0 1 2 3
4 1 1 2 3 2 0 0	2 3 1 0