A. Carnival General

Problem Name	Carnival General
Time Limit	1 second
Memory Limit	1 gigabyte

Every four years, the students of Lund come together to organize the Lund Carnival. For a few days, a park fills with tents where all kinds of festive activities take place. The person in charge of making this happen is the carnival general.

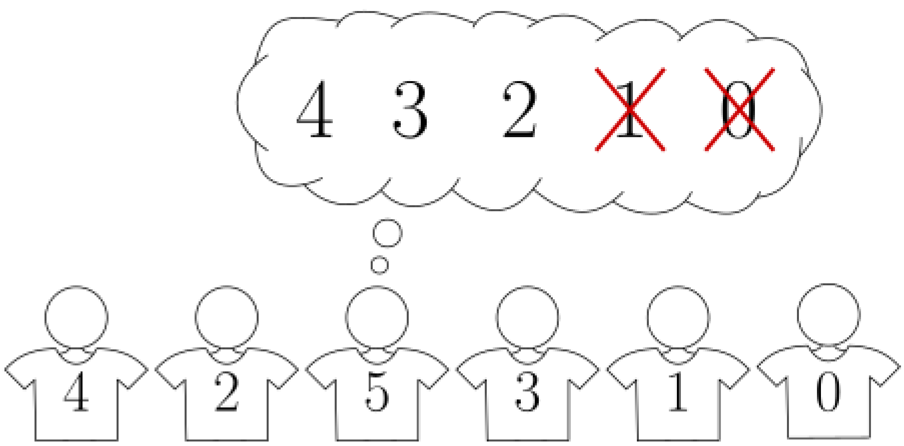
In total, there have been N carnivals, each with a different general. The generals are numbered from 0 to $N-1$ in chronological order. Every general i has given their opinion on how good their predecessors were, by publishing a ranking of the generals $0, 1, \ldots, i-1$ in order from best to worst.

The next Lund Carnival will be in 2026. In the meantime, all past carnival generals have gathered to take a group photo. However, it would be awkward if generals i and j (where $i < j$) end up next to each other if i is **strictly** in the second half of j's ranking.

For example:

- If general 4 has given the ranking `3 2 1 0`, then 4 can stand next to 3, or 2, but not 1 or 0.
- If general 5 has given the ranking `4 3 2 1 0`, then 5 can stand next to $4, 3$ or 2, but not 1 or 0. Note that it is fine if one general is exactly in the middle of another's ranking.

The following figure illustrates sample 1. Here, general 5 stands next to generals 2 and 3, and general 4 stands next to general 2 only.



You are given the rankings that the generals published. Your task is to arrange the generals $0, 1, \ldots, N-1$ in a row, so that if i and j are adjacent (where $i < j$) then i is **not** strictly in the second half of j's ranking.

Input

The first line contains the positive integer N, the number of generals.

The following $N-1$ lines contain the rankings. The first of these lines contains general 1's ranking, the second line contains general 2's ranking, and so on until general $N-1$. General 0 is absent since general 0 didn't have any predecessors to rank.

The ranking of general i is a list with i integers $p_{i,0}, p_{i,1}, \ldots, p_{i,i-1}$ in which every integer from 0 to $i-1$ occurs exactly once. Specifically, $p_{i,0}$ is the best and $p_{i,i-1}$ is the worst general according to general i.

Output

Print a list of integers, an ordering of the numbers $0, 1, \ldots, N-1$, such that for each pair of adjacent numbers, neither is strictly in the second half of the other's ranking.

It can be proven that a solution always exists. If there are multiple solutions, you may print any of them.

Constraints and Scoring

- $2 \leq N \leq 1000$.
- $0 \leq p_{i,0}, p_{i,1}, \ldots, p_{i,i-1} \leq i-1$ for $i = 0, 1, \ldots, N-1$.

Your solution will be tested on a set of test groups, each worth a number of points. Each test group contains a set of test cases. To get the points for a test group, you need to solve all test cases in the test group.

Group	Score	Limits
1	11	The ranking of general i will be $i-1, i-2, \ldots, 0$ for all i such that $1 \leq i \leq N-1$
2	23	The ranking of general i will be $0, 1, \ldots, i-1$ for all i such that $1 \leq i \leq N-1$
3	29	$N \leq 8$
4	37	No additional constraints

Example

The first sample matches the condition of test group 1. In this sample, neither general 2 nor 3 can stand next to general 0, and neither general 4 nor 5 can stand next to generals 0 and 1. The sample output was illustrated in the figure above.

The second sample matches the condition of test group 2. In this sample, general 2 can't stand next to general 1, general 3 can't stand next to general 2, and general 4 can't stand next to generals 3 and 2.

The third sample matches the condition of test group 3. In this sample, the only pairs of generals that can't stand next to each other are $(1, 3)$ and $(0, 2)$. Hence, there are no conflicts if they are arranged `3 0 1 2`. Another possible answer is `0 1 2 3`.

<table>
<tr><th>Input</th><th>Output</th></tr>
<tr><td><pre>6
0
1 0
2 1 0
3 2 1 0
4 3 2 1 0</pre></td><td><pre>4 2 5 3 1 0</pre></td></tr>
<tr><td><pre>5
0
0 1
0 1 2
0 1 2 3</pre></td><td><pre>2 0 4 1 3</pre></td></tr>
<tr><td><pre>4
0
1 0
0 2 1</pre></td><td><pre>3 0 1 2</pre></td></tr>
</table>