Inversion
Problem ID: inversion

Permutation is an important and interesting topic in mathematics. One of the most well-known concept relating to permutation is inversion.

To recap, a sequence of integers $p_1, p_2, \ldots, p_n$ is called a **permutation** of integers $1, 2, \ldots, n$ if and only if:

- For every $1 \leq i \leq n$, $1 \leq p_i \leq n$.
- For every $1 \leq i < j \leq n$, $p_i \neq p_j$.

An inversion of a permutation $p_1, p_2, \ldots, p_n$ is a pair (i, j) such that $i < j$ and $p_i > p_j$.

In this problem, there is a secret permutation $p_1, p_2, \ldots, p_n$ of integers $1, 2, \ldots, n$. You are given a two-dimensional array c where $c_{u,v}$ equals the number of inversions of p if we swap p_u and p_v. Your task is to guess this secret permutation.

Input

The first line contains an integer n $(1 \leq n \leq 1\,000)$ — the length of the permutation.

In the next n lines, the u-th one contains n integers $c_{u,1}, c_{u,2}, \ldots, c_{u,n}$ $\left(0 \leq c_{u,v} \leq \frac{n \cdot (n-1)}{2}\right)$.

It is guaranteed that there is at least one valid secret permutation.

Output

You should print a single line consists of n integers $p_1, p_2, \ldots, p_n$ representing the secret permutation.

If there are multiple correct permutations, you can output any of them.

Sample Input 1	Sample Output 1
2 0 1 1 0	1 2

Sample Input 2	Sample Output 2
3 2 3 1 3 2 1 1 1 2	2 3 1