

COCI '15 Contest 4 #3 Deathstar

Time limit: 0.6s **Memory limit:** 64M

Young jedi Ivan has infiltrated in The Death Star and his task is to destroy it. In order to destroy The Death Star, he needs an array of non-negative integers a_i of length N that represents the code for initiating the self-destruction of The Death Star. Ivan doesn't have the array, but he has a piece of paper with requirements for that array, given to him by his good old friend Darth Vader.

On the paper, a square matrix of the size N is written down. In that matrix m in the i^{th} row and j^{th} column there is a number that is equal to **bitwise and** between numbers a_i and a_j . Unfortunately, a lightsaber has destroyed all the fields on the matrix's main diagonal and Ivan cannot read what is on these fields. Help Ivan to reconstruct an array for the self-destruction of The Death Star that meets the requirements of the matrix.

The solution doesn't need to be unique, but will always **exist**.

Input

The first line of input contains the integer N ($1 \leq N \leq 1\,000$), size of the matrix.

Each of the following N lines contains N numbers m_{ij} ($1 \leq m_{ij} \leq 10^9$), the elements of the matrix.

Output

The first and only line of output must contain any array of N non-negative integers less than 10^9 that meet the requirements from the task.

Sample Input 1

```
3
0 1 1
1 0 1
1 1 0
```

Sample Output 1

```
1 1 1
```

Explanation for Sample Output 1

It is clear that one of the arrays that meets the requirements from the matrix is $[1\ 1\ 1]$. Notice that this is not the only possible solution.

Sample Input 2

```
5
0 0 1 1 1
0 0 2 0 2
1 2 0 1 3
1 0 1 0 1
1 2 3 1 0
```

Sample Output 2

```
1 2 3 1 11
```