

Best Permutation

Time Limit: 2 seconds

Problem Description

We say a sequence a_1, \dots, a_n is a permutation of $\{1, \dots, n\}$ if and only if $\{a_1, \dots, a_n\} = \{1, \dots, n\}$. Consider a weight function $w : \{1, \dots, n\} \times \{1, \dots, n\} \rightarrow \mathbb{Z}^+$, we define the weight of a permutation a_1, \dots, a_n as

$$W(a_1, \dots, a_n) = \sum_{1 \leq i < j \leq n} w(a_i, a_j)$$

and the best permutation as the permutation achieving maximum weight. Given a weight function, write a program to compute the best permutation.

Technical Specifications

1. The number of test cases is no more than 20.
2. $n \leq 20$.
3. $0 < w(x, y) \leq 1000000$ for every $x, y \in \{1, \dots, n\}$.

Input Format

The first line of the input file contains an integer indicating the number of test cases. The first line of each test case contains an integer n which denotes the length of the sequence. The rest n lines represent the weight function w . Each of them contains exactly n integers and the j -th number on the i -th line is $w(i, j)$.

Output Format

For each test case, output the best permutation a_1, \dots, a_n . For $i \in \{1, \dots, n-1\}$, separate a_i and a_{i+1} by a blank. If there are multiple solution, then you should output the first one in the lexicographical order.

Sample Input

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

Sample Output

```
1
1 2
3 2 1
```