British Informatics Olympiad Final

31 March – 2 April, 2006

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Future

Where now stands that small knot of villages known as The Endians, a mighty city will one-day stand. Those to come will stand on the top of high buildings and see the city stretch out for miles, unless their view is blocked by other buildings.

One hypothesis is that the city will be built on a square grid. The heights of the buildings will be from 1 to n and, in each row and column, each height will occur exactly once. Looking across a row, a building will be visible if there are no higher buildings before it in the row; similarly for a column. For example, if the heights in a given row were 3 2 4 1 6 5 the only visible buildings would be those of heights 3, 4 & 6.

Write a program that, given the number of buildings visible in each row and each column, determines a possible arrangement for the buildings. The first line will contain a single integer n ($1 \leq n \leq 8$), the number of rows (and columns) in the square grid. The next line will contain n integers, the i^{th} of which indicating the number of visible buildings in the i^{th} row (looking from left to right). The next line will contain n integers, the i^{th} of which indicating the number of visible buildings in the i^{th} column (looking from row 1 to row n).

You should output a possible arrangement of the building heights. It should consist of n lines, each containing n integers; the i^{th} containing the ordered heights in the i^{th} row. All test cases will have a valid solution.

Sample Input

```
4
3 1 2 2
2 2 2 1
```

Sample Output

```
1 3 2 4
4 2 1 3
3 1 4 2
2 4 3 1
```