H - The Case of the Nonogram Thief

Context

An egocentric teddy-bear thief leaves clues after each of his thefts. He is obsessed with Japanese puzzles (called nonograms), and always leaves clues to the next crime with a nonogram. A nonogram is a black and white image encoded by the black squares information on each of its rows and columns.

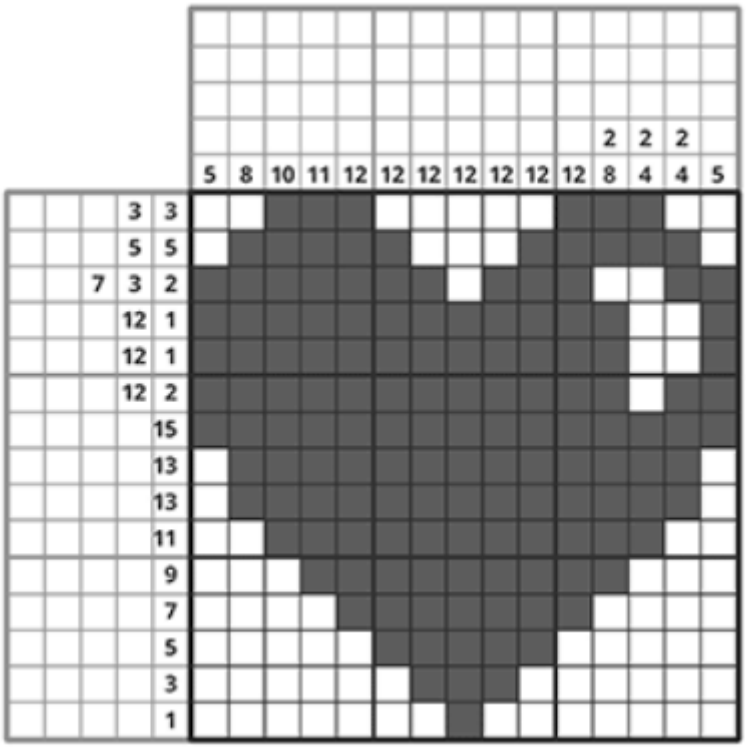
Help decipher the clues to get ahead of the Nonogram Thief!

The Problem

A nonogram encodes an *n* x *n* image where each square can be painted black or white. For each row, there is a sequence of numbers that describe groups of consecutive black squares appearing on that row. And for each column, there is a sequence of numbers that describe groups of consecutive black squares appearing on that column.

For example, 3 1 5 means three consecutive black squares, one black square and 5 black squares, in this order, separated by one or more white squares between them.

The numbers related to each row appear from left to right, and the numbers related to each column appear from top to bottom. For example, in the image below you can see the description of a nonogram, and the corresponding black and white image.



A sample nonogram and its solution.

Given the description of a nonogram, your task is to find the corresponding image. It is guaranteed that at least one solution exists for each nonogram. The solution to a nonogram might not be unique; your program can output any valid solution.

The Input

The input to this problem consists of a set of 1+2*n* lines specifying: the first of them, the size of the nonogram which is an integer *n*, 1 ≤ *n* ≤ 7. The following *n* lines specify the description of each row. Each of these lines starts with an integer *k* which indicates the number of groups of consecutive black squares appearing on that row, followed by the *k* sizes of these groups.

The last *n* lines specify the description of each column. Each of these lines starts with an integer *k* which indicates the number of groups of consecutive black squares appearing on that column, followed by the *k* sizes of these groups. The description of a row or a column with no black squares is specified as '1 0'.

The Output

In the output, you have to write *n* lines of *n* characters, representing the nonogram solution image. You have to output '.' for the white squares, and 'X' for the black squares. Remember that the solution might not be unique and you can output any valid solution.

Sample Input 1

```
2
1 1
1 1
1 1
1 1
```

Sample Output 1

```
X.
.X
```

Sample Input 2

```
7
1 3
1 4
2 3 1
1 6
1 6
2 1 1
2 2 2
1 1
2 5 1
1 7
1 5
2 2 1
1 4
1 3
```

Sample Output 2

```
.XXX...
XXXX...
.XXX..X
.XXXXXX
```

```
.XXXXXX
..X..X.
.XX.XX.
```

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