problem 20
Product Distribution
15 points

You skip into the center of the arena, where several crates have been placed in rows. The event coordinators explain that the grid of crates will be obscured when they raise tarps around them. The crates will then be moved and your task will be to determine the new configuration from a few clues. There are two rules the configuration will always follow:

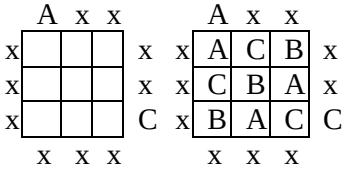
- The layout is a square grid, 3, 4, or 5 meters wide. Each crate fits in one of the 1-meter squares.
- There are three types of crates, labeled A, B and C, and exactly one of each crate will be found in each row and column.

The event coordinators raise the tarps and modify the configuration. For clues, they have positioned cameras at the end of every row and column. Each camera shows the first crate it sees from its position along the row or column. Some of the cameras have been turned off, but there is enough information to determine the arrangement.

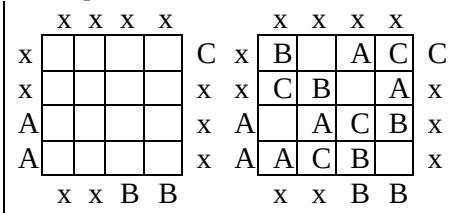
You must to write a program to use the views from the cameras and print the distribution of the crates.

In the following examples, "x" represents a camera that is turned off. A/B/C each represent a camera that is on and the type of crate it sees first in its row or column.

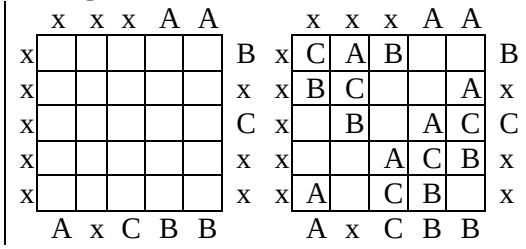
Example 1: 3x3.



Example 2: 4x4.



Example 3: 5x5.



Input

The input is first an integer N representing the size of the square grid. The next line shows the first crate seen in each column from the top of the grid separated by spaces (X means the camera is off.) The next N lines show the first crate seen on each row from the left and right of the grid. The last line shows the first crate seen in each column from the bottom of the grid.

Example 1
```
3
A X X
X X
X X
X C
X X X
```

Example 2
```
4
X X X X
X C
X X
A X
A X
X X B B
```

Example 3
```
5
X X X A A
X B
X X
X C
X X
X X
A X C B B
```

Output

Print the NxN grid, with space between each square in a row. Use a period for empty squares.

Example 1
```
A C B
C B A
B A C
```

Example 2
```
B . A C
C B . A
. A C B
A C B .
```

Example 3
```
C A B . .
B C . . A
. B . A C
. . A C B
A . C B .
```