

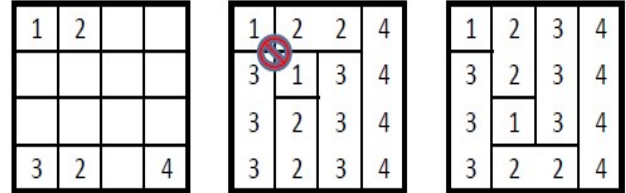
In your new floor-tiling pastime, you've discovered the patterns of Tatamis. A Tatami is a rectangle 1-unit wide and from 1-unit to 4-units long. (Your excitement over a 1-unit wide rectangle "pattern" is a topic we may address later.)

Your business is booming, and your customers have been requesting their own designs. Given the size of a square room, and only a few identifying squares, you have been able to create a unique design for each of them.

There are 2 rules when placing Tatamis:

- A Tatami may not share an edge with a Tatami of the same size.
- Four Tatamis may not share the same corner.

For example, given the partial map on the right, it would seem there are two possible tilings, but the first one fails because four Tatamis share the same corner.



Input

You will receive a partial description of a square room tiled with Tatamis. The first line will be an integer N (from 4 to 10), the size of the square room. The next N lines describe squares already known. Each number marks the only square known in a Tatami of that size. Unknown squares are marked with a period (.). Not all Tatamis are marked.

```
4
12..
....
....
32.4
```

Output

Print the completed tiling of the room.

```
1234
3234
3134
3224
```

Discussion

Remember to test **all** datasets. The provided inputs include difficult 10x10 rooms. To PASS, all datasets must be solved, and the time to solve any single dataset must be less than 1 minute. Judge data is different than student data.

Inspiration for this problem comes from "Mixed Tatamis" in the App "100 Logic Games 2."

Additional Examples

Input 1	Output 1	Input 2	Output 2
6		7	
.2..3.	32233314.	4444142
...4..	344442	3...2..	3332242
.1....	312232	...4...	4444343
...3.	444431	3331343
..1...	221232	.1.....	2122323
.3..1.	333212	...421	2444421
		..31..3	3331333