Miniature Sudoku

Time limit: 0.6s
Java: 1.0s
Python: 1.4s

Memory limit: 64M
Python: 256M

The puzzle game Sudoku is a classical game. In the puzzle, the player is given a partially filled 9×9 grid. The objective of the game is to fill in the grid such that each row, column, and each of the nine 3×3 subgrids contain all the digits from 1 to 9.

2	1	9	8	7	6	4	3	5
8	4	3	5	9	1	2	7	6
7	6	5	2	4	3	8	9	1
3	2	4	1	6	7	9	5	8
1	9	7	3	5	8	6	2	4
6	5	8	4	2	9	3	1	7
4	8	2	7	3	5	1	6	9
5	3	6	9	1	4	7	8	2
9	7	1	6	8	2	5	4	3

An example of a solved 9×9 Sudoku grid.

Jonathan is playing Sudoku! However, his version of Sudoku is **slightly different**. He is instead given a partially filled 4×4 grid, and the objective is to fill in the grid such that each row, column, and each of the four 2×2 subgrids contain all the digits from 1 to 4.

He is given Q of these puzzles. However, since he is too lazy to solve them manually, he has asked you to help him solve them with a computer program!

Input Specification

The first line will contain the integer Q $(Q = 10^5)$, the number of grids that Jonathan needs solved.

Each of the Q grids will contain 4 lines consisting of 4 characters, for a total of $4Q$ lines. It is guaranteed the grid will only contain the characters `1`, `2`, `3`, `4`, and `X`. `X` means that the cell is unfilled, and you must fill it in with the appropriate value.

Output Specification

For each grid, output 4 lines, the filled in grid. The output should therefore consist of a total of $4Q$ lines.

Any valid solution will be accepted. It is guaranteed each grid will have at least one solution.

Note for Sample

The sample does not respect the constraints. Your solution does not need to produce the correct output on the sample to get AC. In particular, the sample has $Q = 3$ while the actual test data will have $Q = 10^5$.

Sample Input

```
3
1234
4321
2413
3142
1234
4XX1
2XX3
3142
231X
142X
413X
XXXX
```

Sample Output

```
1234
4321
2413
3142
1234
4321
2413
3142
2314
1423
4132
3241
```

Explanation for Sample

The third case in the sample is:

2	3	1	
1	4	2	
4	1	3	

The only possible filled-in grid would be:

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