Task A1. Sudo ku

Elly finds quite disrespectful towards the teachers to do her makeup in class. That's why she plays Sudoku instead. After some point the game becomes trivial – that means there is always a row, column or 3 by 3 square that is missing only one number. Elleonora calls this phase "Ku", because it is the end of the game as "ku" is the end of the word "Sudoku". She finds pointless to finish this non-challenging (for her) game, so she gives it to you with the words "sudo ku" instead. You, on the other hand, decide to write a program that does that for you.

For these of you that do not know the rules of Sudoku, here there are in short:
You are given a number matrix with 9 rows and 9 columns. Some of the positions can be empty, i.e. you don't know which number stands there, while others are already filled. You should fill the empty ones in such way, that each row and column contains all numbers between 1 and 9. Also if we divide the matrix into 9 sub-squares of size 3 by 3, each sub-square should also contain all numbers between 1 and 9 inclusively. See the sample output for clarification.

Input

On the standard input your program will be given almost-filled Sudoku, which can be finished by finding on each move a row, column or sub-square with exactly one missing number. It is given as a 9 by 9 matrix, each position of which is zero if the position is empty or a digit between 1 and 9 if it has been already filled.

Output

On the standard output print your solution as 9 rows with 9 numbers in each.

Example:

Example input	Example output
5 3 4 6 7 8 9 1 2	5 3 4 6 7 8 9 1 2
6 0 2 0 9 5 3 4 8	6 7 2 1 9 5 3 4 8
1 9 8 3 4 2 5 6 7	1 9 8 3 4 2 5 6 7
8 5 9 7 6 1 4 2 3	8 5 9 7 6 1 4 2 3
4 2 6 8 5 3 7 9 1	4 2 6 8 5 3 7 9 1
7 1 3 9 2 4 8 5 6	7 1 3 9 2 4 8 5 6
9 6 1 5 3 7 2 8 4	9 6 1 5 3 7 2 8 4
2 0 7 0 1 9 6 3 5	2 8 7 4 1 9 6 3 5
3 4 5 2 8 6 1 7 9	3 4 5 2 8 6 1 7 9

Clarification:

Four numbers are missing from this Ku and they can be found with the following steps:
1. In the top-left sub-square (consisting of the numbers {5, 3, 4, 6, ?, 2, 1, 9, 8}) there is only one missing number and it is 7.
2. In the second column there is only one missing number now and it is 8.
3. In the second row there is also only one missing number and it is 1.
4. In the fourth column (or eight row) only one number is missing and it is 4.

Note that there are other ways how to finish the Sudoku, but they all lead to the same final configuration.