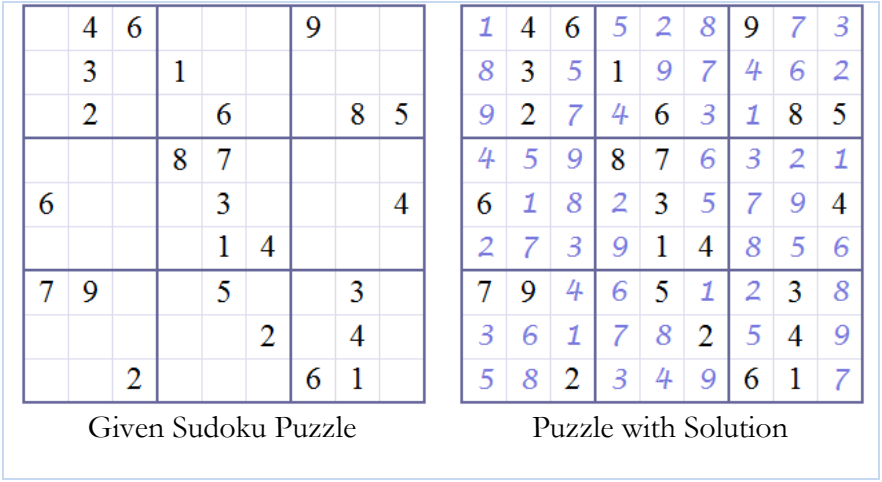
1397 – Sudoku Solver

Sudoku is a logic-based, combinatorial, number-placement puzzle. The objective is to fill a **9×9** grid with digits so that each column, each row, and each of the nine **3×3** sub-grids that compose the grid (also called "boxes", "blocks", "regions", or "sub-squares") contains all of the digits from **1** to **9**. The puzzle setter provides a partially completed grid, which typically has a unique solution. Or we can say, the same single integer may not appear twice in the same **9×9** playing board row or column or in any of the nine **3×3** sub-regions of the **9×9** playing board. Now you are given a partially filled Sudoku board that has a unique solution. Your task is to fill the board.



Given Sudoku Puzzle | Puzzle with Solution

Input

Input starts with an integer **T (≤ 30)**, denoting the number of test cases.

Each case starts with a blank line. Then there will be 9 lines, each containing 9 characters denoting the board as described. Empty places will be marked by a **'.'**.

Output

For each case, print the case number in a single line. Then print the solution in 9 lines with 9 characters in each line.

Sample Input	Output for Sample Input
1 .46...9.. .3.1..... .2..6..85 ...87.... 6...3...4 ....14... 79..5..3. .....2.4. ..2...61.	Case 1: 146528973 835197462 927463185 459876321 618235794 273914856 794651238 361782549 582349617