1229 – Treblecross

Treblecross is a two player game where the goal is to get three **X** in a row on a one-dimensional board. At the start of the game all cells in the board are empty. In each turn a player puts an **X** in an empty cell, and if the move results three **X** next to each other, that player wins.

Given the current state of the game, you are to determine if the current player to move can win the game assuming both players play optimally.

Consider the game where the board size is 5 cells. If the first player puts an **X** at position three (in the middle) so the state becomes **..X..**, he will win the game as no matter where the other player puts his **X**, the first player can get three **X** in a row. If, on the other hand, the first player puts the **X** in any other position, the second player will win the game by putting the **X** in the opposite corner (for instance, after the second players move the state might be **.X..X**). This will force the first player to put an X in a position so the second player wins in the next move.

Input

Input starts with an integer **T (≤ 200)**, denoting the number of test cases.

Each case starts with a line containing a string denoting the current status of the game. The string will only contain the characters **'.'** and **'X'**. The length of the string (the size of the board) will be between **3** and **200** characters, inclusive. No state will contain three **X** in a row.

Output

For each case, print the case number and the positions on the board, where the player to move may put an **X** and win the game. The positions should be separated by a single space, and be in increasing order. The leftmost position on the board is **1**. If there is no such position print **0**.

Sample Input	Output for Sample Input
4 ..... X.....X..X.......X....X..X .X.X...X	Case 1: 3 Case 2: 0 Case 3: 3 Case 4: 5 6 13 14