

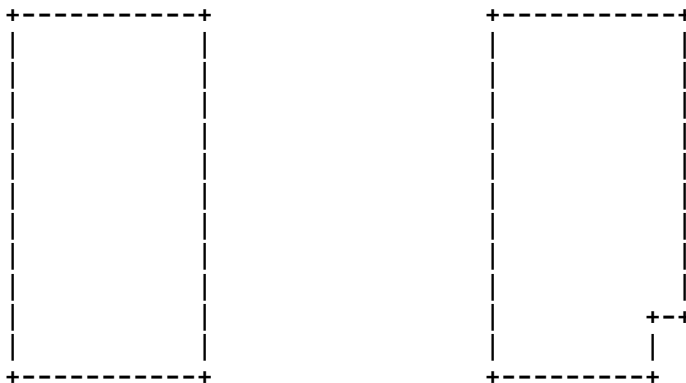
Problem 10: Trick, or Treat?

Frugal Floors (of problem 9 fame) wants to provide "frugal" floorplans to their customers showing the layout of rooms. Being frugal, they have an inexpensive printer that can only print text characters with fixed widths (that is, it uses "monospaced" fonts). It also has no facility for backspacing, doing "reverse line feeds" (that is, moving the paper backward), or overprinting. But the printer can still display a simple text-mode approximation of a floorplan.

They would like to employ exactly the same input data used in the program that calculates the area of a room (see problem 9 for details). At the intersection of each pair of walls, they want to display a plus sign ('+'). They want to display hyphens ('-') or vertical strokes ('|') for the walls, using whichever is appropriate.

For a wall of length N , they want to use $2 \times N + 1$ characters; two of these will be plus signs, and the remainder will be hyphens or vertical strokes. The only other characters that may "appear" in the floorplan are spaces (blanks) and end of line characters.

Consider a few examples. For a square room with 6-foot walls they want the diagram shown on the left below. And for a similar room with a 1-foot square inset at the lower right corner, they want the diagram shown on the right.



Although these diagrams are correct, the vertical and horizontal sizes of a character cell on the printer differ, so the diagrams appear elongated. That's certainly expected.

And since the robot that prepares the data could be started at the intersection of any pair of walls, and can move clockwise or counterclockwise around the room's periphery, the diagrams may be rotations or mirror images of those shown in these examples. You may be assured that this behavior is anticipated as well, and is acceptable.

Although real printers have limitations on the widths of the lines they may display, Frugal apparently forgot this, and therefore didn't specify the scaling of floorplans that are wider than the printer. When such wide floorplans are printed, the long lines may wrap around or be truncated, but that's not your problem.

Input

The input is in exactly the same format as that used for problem 9.

Output

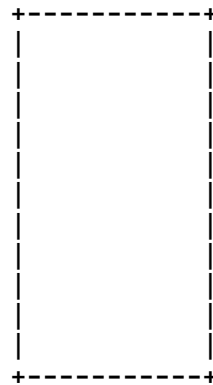
The output for each case is a line containing the case number (as illustrated in the samples below), followed by the text-mode floorplan starting on the next line. Display a blank line after each floorplan.

Sample Input

```
6 L 6 L 6 L 6 X
5 L 1 R 1 L 5 L 6 L 6 X
X
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Output for the Sample Input

Case 1:



Case 2:

