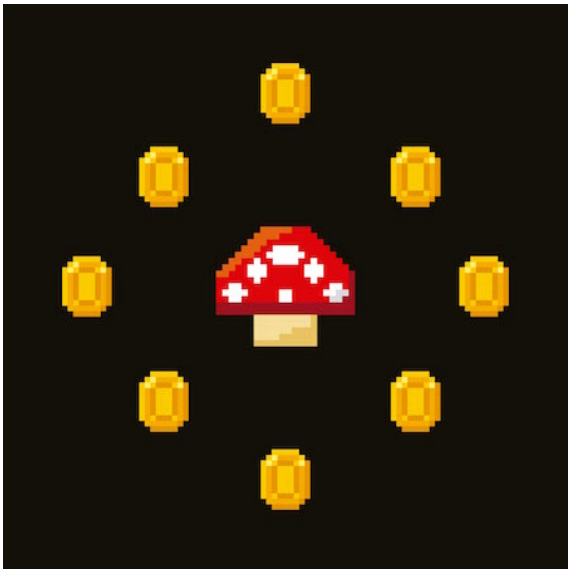

Goal

After overcoming a difficult video game boss, it's time for you to get your reward: you arrive in a treasure room. In this game, your character can pick up two kinds of items:
- Gold coins, which increase your wealth by one.
- The multipliers, which double the fortune you have at the moment of picking them up.

So the more you are already rich, the more you get rich. The room is represented by a square grid of size **N**x**N**, and you start in the top left corner. The objective is to determine the sequence of movements that will allow you to maximize your loot.

Data

Input

Row *1*: an integer **N** between *1* and *10*, representing the size of the grid..
Row *2* to ***N*** + *1*: the rows of the map represented by strings of **N** characters. The characters in the line are either ○ (a part) or * (a multiplier) or. (empty).

Output

A string of characters, indicating the successive movements to be made by your character. The possible characters are:

- ^: move one cell up
- v: move one cell down
- <: move one cell to the left

->: move one cell to the right
- x: pick up the object on the current box

It is requested that this chain indicates legal movements: the character must not leave the edges of the grid, nor try to pick up an object on a cell containing no object. (After being picked up, an object disappears from its cell.) It must also reach the highest score possible.

Example

```
4
....
o.*o
....
....
```

An accepted output is `vx>>>x<x`:
- We go down one cell (`v`) on the left-most coin, then pick it up (`x`);
- We move 3 squares to the right, to reach the room on the right (passing above the `*`, which does not activate yet);
- We pick up this second room, then we move to the left on the multiplier, which we pick up in turn.

So we get a total of 4 pieces (ie (1 + 1) × 2), that's the best we can do. For example, if we had used the multiplier before recovering the second coin, we would have only got 3 coins. There are other ways to move to end up having 4 pieces, which are also accepted solutions.

You can download sample input and output data files to work locally by clicking on the link at the bottom of the French version of the question.

Téléchargez des fichiers d'exemple ainsi qu'un modèle de code pour travailler localement.