# Tron Racers

You will be given an integer **n** for the size of the matrix. On the next **n** lines, you will receive the rows of the matrix. The game starts with two players (first player is marked with **"f"** and the second player is marked with **"s"**) in random positions and **all of the empty slots** will be filled with **"\*"**.

Each turn you will be given commands **respectively for each player’s movement.** The **first command** is for the first player and the **second** is for the second player. After a player moves, **he leaves a trail** on the field. The symbol that marks the trail is the same as the player's symbol. If a player **goes** **out** of the matrix, he comes in from **the other side**. For example, if the player is on 0, 0 and the next command is left, he goes to the last spot in the first row.

If a player steps on the other player's trail, he dies. When a player dies in the field, you should write **"x"** in the position where he died.

When **only one of the players** is left alive on the field the game ends.

### Input

* On the first line, you are given the integer N – the size of the square matrix.
* The next N lines holds the values for every row.
* On each of the next lines you will get two commands separated by space .

### Output

* In the end print the matrix.

### Constraints

* The size of the matrix will be between **[2…20].**
* There will always be exactly two players.
* The players will always be indicated with **"f"** for the first one and **"s"** for the second one.
* There will always be enough commands to finish the game with one player alive.
* There will not be commands where a player goes back and steps on his trail from the previous turn.
* Commands will be in the format **up**, **down**, **left** or **right**.

### Examples

|  |  |  |
| --- | --- | --- |
| **Input** | **Output** | **Comments** |
| 5  \*\*\*f\*  \*\*s\*\*  \*\*\*\*\*  \*\*\*\*\*  \*\*\*\*\*  down down  right down  down right  down down  down left  left left | \*\*\*f\*  \*\*sff  \*\*s\*f  \*\*ssf  \*\*sxf | The first command is **down down** so **f** moves down and **s** moves down. After each turn the field is:  1 2 3 4 5 6  \*\*\*f\* \*\*\*f\* \*\*\*f\* \*\*\*f\* \*\*\*f\* \*\*\*f\*  \*\*sf\* \*\*sff \*\*sff \*\*sff \*\*sff \*\*sff  \*\*s\*\* \*\*s\*\* \*\*s\*f \*\*s\*f \*\*s\*f \*\*s\*f  \*\*\*\*\* \*\*s\*\* \*\*ss\* \*\*ssf \*\*ssf \*\*ssf  \*\*\*\*\* \*\*\*\*\* \*\*\*\*\* \*\*\*s\* \*\*ssf \*\*sxf  On turn 6 **f** crashes into **s**'s trail and **f** dies. As there is only one player left alive **s** is the only one left he is the winner. |
| 4  \*f\*\*  \*\*\*\*  \*\*s\*  \*\*\*\*  down up  down right  right right | \*f\*\*  \*fss  \*fx\*  \*\*\*\* |  |