Problem F. Right Angle Painting

Input file:	*standard input*
Output file:	*standard output*
Time limit:	6 seconds
Memory limit:	256 mebibytes

Takahashikun likes to paint floors. There is a floor divided into $N \times N$ grid, and some (possibly zero) cells may contain obstacles.

The information about the grid is given as N strings $S_1, \ldots, S_N$. The j-th character of S_i represents the cell (i, j): '`.`' and '`s`' represent an empty cell, and '`#`' represents a cell with obstacles.

There is excatly one cell with '`s`'. First, Takahashikun enters the cell with '`s`' and paints this cell. After that, he makes zero or more steps according to the following rule:

- In each step, he moves to one of (vertically or horizontally) adjacent cells and paint it.
- Except for the first step, the direction of movement must be changed by 90 degrees from the previous step. That is, after he moves horizontally he must move vertically, and vice versa.
- He must not enter already painted cells.
- He must not enter cells with obstacles.
- He must not go out of the grid.

Determine if he can paint all cells without obstacles.

Input

Input Format:

N
S_1
S_2
$\vdots$
S_N

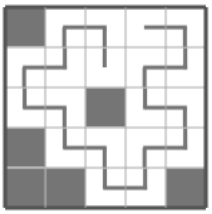
Constraints:

- $1 \leq N \leq 400$
- $|S_i| = N$
- Each character in S_i is one of '`.`', '`#`', or '`s`'.
- There is exactly one cell with '`s`'.
- There is at least one cell with '`.`'.

Output

Print "`POSSIBLE`" if he can paint all cells without obstacles. Otherwise print "`IMPOSSIBLE`".

Examples

standard input	standard output	Notes
5 #.... ..s.. ..#.. #.... ##..#	POSSIBLE	
5 s.### ..### ###.. #.... #..##	IMPOSSIBLE	