

Note

2023/2024 SEASON – FOURTH ROUND



K and L again began some competition. This time they play a game in a 2 dimensional labyrinth.

The Labyrinth contains n columns and m rows. Each cell is either a corridor or a corner. The pawn is staying on a cell. The player whose turn it is chooses one of the two directions, left or up, and can move the pawn in that direction only. When the pawn goes through a corner, the direction it is moving switches to the other one and for that turn it can only move in that direction (until it reaches another corner). The player can leave the pawn on any of the cells it can go through along its path, if the cell is a corridor.

When a player cannot move the pawn, they lose.

Currently it is L's turn and he gives you the Labyrinth and the position of the pawn. He is wondering, if both of them play optimally, can he win. Write a program **note.cpp** which answers his question.

Input

The first line of the file **note.in** contains n and m – the amount of columns and rows. Each of the next n lines contains m symbols, without spaces in between: 0 if the cell is a corridor, 1 if it is a corner or L if the pawn is on that cell.

Output

On the only line of the file **note.out** print 1 symbol: L if L will win or K if K will win.

Constraints

$$1 \leq n * m \leq 10^6$$

Time Limit: 0.3 sec.

Memory Limit: 64 MB

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Sample Test

Input (note.in)	Output (note.out)	Explanation
3 3 000 000 0L0	L	L will move the pawn on cell (2,2). After that K will move it to either (1,2) or (2,1). In both cases after that L will move it to (1,1) and K won't be able to move it.
2 5 01000 0001L	K	L has two options: go up and move the pawn to cell (1,5) or go left. In the second case, he will go through the corner and will change the direction to upwards, where he has to leave the pawn at (1,4). In both cases K will move the pawn to (1,3). Then L can move only left, because there are no cells upwards. But on his left is a corner, which will change his direction upwards, where there isn't a cell he can go to. So L cannot move the pawn.