Given a two-dimensional maze, find **the** **shortest path** out of it. The maze is represented as a sequence of lines containing:

**‘W’**: representing a wall

**Blank**: representing a traversable square

**‘S’**: indicating the starting position

**‘E’**: indicating the exit square

The exit square will be on the edge of the maze; all other squares on the edge will be ‘W’. Each line of the maze will be of equal length (the width of the maze). Moves must be to a blank square or to ‘E’, and must be either one step horizontally or vertically.

Your input will be a file containing an N x M maze. The input is guaranteed to be in correct format and the last line of the file will be a line of walls. Your output will be a list of step directions to go (L: left, R: right, U: up, D: down) in sequence. If there are multiple solutions which result in same shortest path, you only need to provide one solution. Your program will be graded by its **correctness, efficiency and data structure**. Program that does not produce correct output for the given samples would not be graded.

**Sample input file 1:**

WWWWWWWWWWWW

W W S W E

W W WWW W W

W W W W

W WWWWWWWW W

W W

WWWWWWWWWWWW

**Sample output 1:**

RRDDLLLLLUULLDDDDRRRRRRRRRUUUUR

**Sample input file 2:**

WWWW

WSWE

WWWW

**Sample output 2:**

No path is found