

STACKS AND QUEUES

Problem. Rat in a Maze Problem

Consider a rat placed at $(0,0)$ in a square matrix $M[][]$ of order n and has to reach the destination at $(n-1, n-1)$. The rat can move in four directions: U (up), D (down), L (left) and R (right). Your task is finding the shortest path from source to destination which the rat could take.

In the maze matrix, 0 means the block is a dead end and 1 means the block can be used in the path from source to destination. Following is an example maze.

Source			
			Dest.

Following is binary matrix representation of the above maze.

```
1 0 0 0
1 1 0 1
0 1 0 0
1 1 1 1
```

Following is a maze with highlighted solution path.

Source			
			Dest.

Input format:

- The first line contains an integer n denoting the size of the square matrix.
- The next n line, each line contains n space separated values of the matrix M where 0's represents blocked paths and 1 represent valid paths.

Output format:

- The sorted strings denoting all shortest directions, which the rat could take to reach the destination.

Example:

- Input:
4
1 0 0 0
1 1 0 1
0 1 0 0
1 1 1 1
- Output: DRDDRR

Suggestion: Using BFS (Breadth First Search) or DFS (Depth First Search)