Q7. BFS

You are trapped in a maze and need to find the quickest way out!
The maze is composed of unit cubes which may or may not be filled with rock.
You cannot move diagonally and the maze is surrounded by solid rock on all sides.
Is an escape possible? If yes, what is the path to the end?

You must use BFS to detect if the maze has a way out.
You can do this lab without using template.

Input Format

The input file consists of numbers of maze.
Each maze description starts with a line containing two integers R and C (all limited to 30 in size).
R and C are the number of rows and columns.
Then there will follow R lines and each row contains C characters. Each character describes one unit cube of the maze.
A unit cube full of rocks is indicated by a '#' and empty cells are represented by a '.'.
Your starting position is indicated by 'S' and the exit by the letter 'E'.

Please implement the file I/O part.
You MUST read the input data from the input.txt.

Output Format

If it is possible to reach the exit, please print the entire maze plus the path from the start to the exit. (Use 'o' to represent the path)
If it is not possible to escape, print the line
Trapped!

See more detail from Sample output.

Sample Input.

```
4
10 10
##########
#S........#
####.######
####.######
####.######
#........#
####.######
####.######
#........E#
##########

7 15
S..............
.#############.
.#E....#######.
.######........
.######.#######.
.######.#######.
...............

10 15
S..............
...............
...............
...............
...............
...............
...............
...............
..............##
..............#E

10 20
.....#..........#....
.....#.#######.#....
.....#.#.....#.#....
.....#.#.###.#.#....
.....#.#.#S#.#.#....
.....#.#...#.#.#....
.....#.#####.#.#....
.....#........#.#....
.E...########.#....
...............#.....
```

Sample Output.