Problem 5

Amazing Maize Mazes

60 Points

Program Name: maze.java **Input File: maze.in**

Atty loves to travel across America and explore mazes cut into cornfields, or maize mazes. Help her find her way through each of these mazes.

Input

The first line of input will contain a single integer, *n*, indicating the number of data sets to process. The remainder of the input consists of those *n* data sets.

Each data set will consist of two parts:

1. A line in the format "*w h*", where *w* (1-50) is the width of the maze and *h* (1-50) is the height of the maze.
2. The next *h* lines will each contain *w* characters, with each character being one of the following:
   - '@' -- This represents Atty's starting and ending locations. There will be exactly two of these per maze.
   - '#' -- This represents corn and is impassable by Atty.
   - '.' -- This represents empty space through which Atty may pass.

Output

For each data set in the input display the following:

1. A maze exactly as read in, except with the shortest path from the starting location to the ending location marked, by replacing all '.'s along the path with '@'s. There will be one and only one shortest path per maze.

Example Input File

```
3
10 7
##@#######
#.....##@#
#.#.#.##.#
#.#.#.##.#
#.#.####.#
#........#
##########
2 1
@@
5 5
@...#
#.#..
...#.
.#..#
..#.@
```

Example Output To Screen

```
##@#######
#.@@..##@#
#.#@#.##@#
#.#@#.##@#
#.#@#####@#
#..@@@@@@@#
##########
@@
@@..#
#@#..
.@@#.
.#@@#
..#@@
```