Robo Maze

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

Move a robot through a maze using the given commands, and print a map showing the result.

The robot can only move forward and back. If it hits a wall (or the bounds of the maze) when moving, it simply stops executing the current command and goes on to the next.

The robot can also destroy wall sections using a powerful on-board laser. When activated, the laser will vaporize the 1x1 section of wall that is first in its direct line of sight (if any). When walls are vaporized, the position in the maze previously occupied by the wall should be considered the same as any other open space in the maze (i.e., the robot can now move through that space).

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:
1. One line containing a pair if integers, r and c, indicating the number of rows and columns in the maze where $1 <= r,c <= 10$.
2. r lines, each of length c, representing the maze and the robot's starting location and orientation. The maze consists only of walls ('#') and open space ('.'). In the maze is one robot, represented by one of the following characters that also indicates the robot's orientation: N-north, S-south, E-east, W-west.
3. One line containing a single integer, m, indicating the number of commands given to the robot $(20 > m > 0)$.
4. m lines, each containing one of the following robot commands:
   TURN RIGHT   Causes the robot to turn right (clockwise) 90 degrees.
   TURN LEFT   Causes the robot to turn left (counter-clockwise) 90 degrees
   FORWARD <X>   Causes the robot to attempt to move forward X spaces $(10 > X > 0)$.
   BACK <X>   Causes the robot to attempt to move back X spaces $(10 > X > 0)$.
   ZAP   Activates the robot's on-board laser to vaporize a wall.

Output
For each data set in the input display the following:
1. A single line, "Data Set #X" where X is 1 for the first data set, 2 for the second, etc.
2. A representation of the maze, formatted just as given in the input, which shows the maze as it appears after the robot processes all the given commands. Vaporized walls should appear as any other empty space in the maze.

Example Input File
```
2
5 5
#####
#...#
#.#.#
#.N.#
#####
10
FORWARD 9
TURN RIGHT
FORWARD 3
TURN LEFT
FORWARD 2
TURN LEFT
FORWARD 1
TURN LEFT
ZAP
FORWARD 1
7 9
###......
.....##..
....#..#.
.E...##..
....#..#.
.....##..
###......
9
FORWARD 4
TURN LEFT
ZAP
TURN RIGHT
ZAP
TURN RIGHT
ZAP
TURN RIGHT
FORWARD 3
```
Example Output To Screen
```
Data Set #1
#####
#...#
#.S.#
#...#
#####
Data Set #2
###......
.....##..
.......#.
.W....#..
.......#.
.....##..
###......
```