Challenge 12 - Taxi Driver

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You are a taxi driver and you want to offer customers the fastest service possible. You drive in a city that has special traffic rules:

- You are only allowed to make turns to the right.
- You cannot turn and continue in the same position.
- You cannot go in reverse or make 180º turns.

Calculate the length of the shortest path from the starting point to the destination.

Example

```
......#.
..#.....
.....#..
.S...#.X
.....#..
........
```

- S = start
- X = destination
- # = walls

Possible solution

```
......#.
..#┌──┐
...|.#.|
.S─┼┐#.X
...└┘#..
........
```

Length: 14

Input format

The input starts with a number (T) indicating the number of cases. Each case is comprised by two numbers (M, N), followed by N lines of the map. M and N are the width and height of the map.

Output format

For each case, print:

```
Case #Ti: Ri
```

Where Ti is the number of the test case and Ri the result for that case.
If the destination cannot be reached, the result should be ERROR.

Limits

T <= 20
M, N <= 100

Submit & test your code

To test and submit code we provide a set of tools to help you. Download contest tools if you haven't already done that. You will then be able to test your solution to this challenge with the challenge tokens.

```
Challenge tokens: CHALLENGE_12, CHALLENGE_SUBMIT_12
```

To test your program

```
./test_challenge CHALLENGE_12 path/program
```

A nice output will tell you if your program got the right solution or not. You can try as many times as you need.

To test your program against the input provided in the submit phase

```
./test_challenge CHALLENGE_SUBMIT_12 path/program
```

During the submit phase, in some problems, we might give your program harder inputs. As with the test token, a nice output will tell you if your program got the right solution or not. You can try as many times as you need.

In the actual contest you first need to solve the test phase before submitting the code, you must provide the source code used to solve the challenge and you can only submit once (once your solution is submitted you won't be able to amend it to fix issues or make it faster).

If you have any doubts, please check the info section.

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