Problem A: Bandit

Filename: `bandit`

Time limit: `1 second`

One night, you stole a large diamond from a building which has alerted its security! The building is in the shape of a **n x m** grid with rooms of size 1 x 1. Each room leads into all rooms adjacent to itself (directly up, down, left, and right), which the security uses to move throughout the building. Fortunately, you have made your way to the building's ventilation which is directly above the rooms the guards are in. It spans over all rooms and is connected in the same way the rooms are.

Each time the guards step inside of a new room, they can determine the exact room you are in. However, since you have the high ground, you too can see all their locations, as well as where each guard is about to move to. Thus, you should take this into account when deciding which room's vent to move to next.

Formally, this process can be thought of as a turn, constituting the following:

1. First, all security guards will move to rooms directly adjacent to the ones they are in now.
2. As the security guards are moving between rooms, you move to a vent in a room directly adjacent to the one you are in now.

Note that both you and the guards absolutely must keep moving, as the vent will break and you will fall if you stay in the same place for that long, and the guards want to use this opportunity to get their steps in. But, it's okay to visit the same vent on non-consecutive turns as many times as you want.

If you ever happen to be in the vent of a room a security guard is in, they will be able to capture you and take back your diamond! You, of course, want to keep your large shiny diamond, so you must not get captured until the morning when the building reopens to the public, providing an opportunity for you to make your escape. Unfortunately, it is a long night, and the time until morning is equivalent to the time it takes to progress through 10^{100} turns! This is a lot of moving for one night, so you want to know if it is even worth trying to escape.

The Problem

Given an **n** by **m** building with your starting position and the positions of all security guards, determine whether it is possible for you to escape given the guards collectively work together and form an optimal strategy to capture you.

The Input

The first line of input will contain an integer, **c**, representing the number of input cases.

The first line of each input case will contain 2 integers **n** and **m**, indicating the number or rows and columns, respectively, in the building design.

The following **n** lines will each contain a string with **m** characters. The character in the i^{th} row and j^{th} column, indicating the contents of the room in row i, column j, will be an 'X' if you are in the room's ventilation, '**#**' if there is a security guard in the room, and '.' otherwise. It's guaranteed that there will be **exactly** one 'X' in the entire grid.

The Output

For each input case, print out one integer on its own line: 1 if you can escape, and 0 if you are going to be captured before morning.

Input Bounds and Corresponding Credit

100 Points
• $1 \leq \mathbf{c} \leq 50$ • $2 \leq \mathbf{n}, \mathbf{m} \leq 100$

Samples

Input	Output
2 5 5 ..... .X... ...#. #..#. ..... 5 5 ....#. ..X.. ....#	1 0