Problem H
Hasty Haul
Time limit: 3 seconds

Two teams participating in NWERC have hatched a devious plan: they want to get in the organizers' heads and mess with them a bit, but just subtly enough that they will not get caught.


The registration area at NWERC 2024. Photo by Maarten Sijm

The plan is as follows: during the contest registration, where they get their shirts and goodies, they will first wait for the organizer to lean down to grab a shirt. Then, they will quickly lift up one of the k pieces of furniture and move it around. With the limited time frame and the need to do it silently, each team can only manage to move one piece of furniture.

To make sure that they do not get caught, each piece of furniture has to be back at its original place at the end of the registration. From previous visits, the teams know the dimensions of the room and the amount of furniture in it ahead of time, but they do not know the current arrangement of the furniture. To keep things simple, the two teams want to use the same strategy. This means that both teams will make the same move when they encounter the same layout. After deciding on a common strategy and setting off for the contest, they will not be able to communicate. Thus, they plan to come up with a strategy that ensures that, regardless of the arrangement of the furniture, the team that arrives later will undo whatever the team that arrived first did. For some combinations of room size and amount of furniture in the room this is impossible, so pulling off this kind of stunt would be risky.

At least they know for sure they are the only ones pulling this kind of stunt, so no furniture should move around between the two teams' arrivals. Help them find a strategy for their prank!

Input

The input consists of:

- One line with an integer t ($1 \leq t \leq 10\,000$), the number of test cases.
- For each test case, the input consists of:
  - One line with three integers h, w, and k ($1 \leq h, w \leq 8$, $1 \leq k < h \cdot w$), the height and width of the registration room and the number of pieces of furniture in the room.
  - h lines with w characters, each character being either '`.`' or '`#`', the state of the room. A '`.`' represents an empty area, and '`#`' represents a single movable piece of furniture. It is guaranteed that the room contains exactly k pieces of furniture.

  It is guaranteed that there is at least one piece of furniture and some empty area.

This is a multi-pass problem. Your program will be invoked multiple times, possibly more than twice. Your program must act consistently within each invocation, but also across invocations.

For testing purposes, the number and input of subsequent passes will depend on the output of your submission.

A testing tool is provided to help you develop your solution.

Output

For each test case, output "`risky`" if there is no valid strategy the teams could come up with beforehand that works regardless of how the k pieces of furniture end up being placed. Otherwise, specify how a piece of furniture is moved: first output the position of the piece of furniture you move and then output the position where it should be moved to. Both positions must first specify the row r ($1 \leq r \leq h$, counting from the top) and then the column c ($1 \leq c \leq w$, counting from the left).

Sample Case 1

Sample Input	Pass 1	Sample Output
3 1 4 2 .#.# 4 4 8 ..#. ###. ..## .#.# 1 3 1 .#.	1 4 1 1 4 4 4 1 risky	

Sample Input	Pass 2	Sample Output
2 1 4 2 ##.. 4 4 8 ..#. ###. ..## ##..	1 1 1 4 4 1 4 4	