



## TASK

Given the description of Sara's land you need to produce a valid configuration of sprinklers to water it. If you succeed, your score will depend on the total number of holes that need to be made in the fences - see the Grading section for details.

This is an output only task. You will be given 10 input files and you only need to produce the matching output files. You may download the input files from the contest system, on the page labeled 'Tasks'.

You need to submit each output file separately using the contest system. When submitting, the contest system will check the format of your output file. If the format is valid, the output file will be **graded and the score reported**; otherwise, the contest system will report an error. Hence, you will get **full feedback** for the output files submitted for this task.

Test data will be such that a solution always exists. If there is more than one solution, you may submit any one.

## INPUT

The first line of the input contains a pair of integers  $R$  and  $C$  ( $1 \leq R, C \leq 100$ ) - the size of Sara's land as described above.

$6 \cdot R - 1$  lines follow, each containing a sequence  $6 \cdot C - 1$  characters. They represent Sara's fields and fences between them. The fence itself is also represented with characters even though the fence is actually infinitely thin.

A single cell is represented by a single character. The dot character '.' represents an empty cell, while the '#' character (ASCII 35) represents a scarecrow. Vertical fences are represented by the '|' character (ASCII 124) and the horizontal fences with the '-' character (minus). The '+' character denotes an intersection of fences.

## OUTPUT

The output file should contain the textual representation of the field with a valid sprinkler arrangement in the same format as the input file. Each hole in the fence should be denoted by the underscore character '\_'. All empty cells (dots) from the input file should be replaced by lowercase letters 'a' - 'z' so that the following rules are satisfied:

1. Any three cells watered by the same sprinkler are denoted by the same letter, even if not all of them are in the same  $5 \times 5$  field.
2. If two adjacent cells in **the same field** are watered by different sprinklers, they must be denoted by different letters.
3. If two adjacent cells in **different fields** are watered by **different sprinklers** and there is a **hole in the fence** between them, they must be denoted by different letters.
4. It is allowed for adjacent cells that belong to different fields to be denoted by the same letter, as long as all the previous rules are satisfied.

## GRADING

Each test case is worth 10 points. If the watering configuration is not valid, you will get zero points for that test case. If the configuration is valid, the solution will be graded as follows:

- If the number of holes in fences is not greater than  $R \cdot C$ , your score is 10 points.
- Otherwise, your score is 5 points.
- In 4 out of 10 official test inputs, there will be a scarecrow in every field.

**EXAMPLE**

**input**

```
2 2
.....|.....
.....|.....
...#..|.....
.....|.....
.....|.....
-----+-----
.....|.....
.....|.....
.....|.....
.....|.....
.....|.....
```

**output**

```
aaacc|dxxxa
bbbce|dyyya
ddd#e|dzzza
ccbae|fccbb
cbbaa|ffcdb
-----+-----
ssrrr|tttd
saaax_xeee
yxbbb|zdaaa
yxccc|zdbbb
yxddd|zdccc
```