
Painting a board

P40479_en

Examen final d'Algorismia, FME (2011-01-12)

Write a program to paint several zones of an $n \times m$ board. Here, a zone is defined as a maximal set of adjoining cells, both horizontally and vertically.

Input

Input consists of several cases. Every case begins with the dimensions n and m , followed by n lines with m characters each. A character '#' indicates a wall. A dot indicates an empty cell. A lowercase or uppercase letter indicates what must be used to fill that zone. Every zone has at most one letter. Suppose $3 \leq n \leq 30$, $3 \leq m \leq 30$, and that the borders of the board only have walls.

Output

For every case, print the result of painting the board, followed by an empty line.

Sample input

```
6 10
#####
#...A...#
#####
#...#...#
##.z....#
#####
7 15
#####
#..#.....#..Z#
#Z#...#...#...#
##...#.#...#.#
#...#...#...#t##
#..#...a...#...#
#####
8 10
#####
#.....#
#..#...#..#
#.#.#....#
#.#.#....#
#...#...b.#
#.....#
#####
```

Sample output

```
#####
#AAAAAAA#
#####
#zzz##zzz#
#zzzzzzz#
#####

#####
#ZZ#.....#ZZ#
#Z#...#...#ZZ#
##...#a#...#Z#
#...#aaa#...#t##
#..#aaaa#...#.#
#####

#####
#bbbbbb#
#bb#bb#bb#
#b#.#bbb#
#b#.#bbb#
#bb#bbb#
#bbbbbb#
#####
```

Problem information

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Generation : 2024-05-02 17:02:31

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