Game of life (1)   P26100_en

The English mathematician John Conway invented in 1970 the following game: Imagine a matrix with n rows and m columns. We consider neighbor positions to a given position the (at most, eight) adjacent positions, either horizontally, vertically or diagonally. Every moment, each position is either empty or it contains a bacterium. The rules are:

- An empty position at time t will contain a bacterium at time $t + 1$ if and only if at time t it had exactly three neighbor bacteria.

- An occupied position at time t will contain a bacterium at time $t + 1$ if and only if at time t it had two or three neighbor bacteria.

Write a program that, for every given matrix, prints it at the next moment of time.

Input

Input consists of several cases. Every case begins with n and m (both strictly positive), followed by n lines, each one with m characters: 'B' if the position has a bacterium, and '.' if the position is empty. A special case with $n = m = 0$ marks the end of the input.

Output

For each case, print the matrix corresponding to the next moment of time using the same format of the input (do not print n and m). Separate matrices with an empty line.

Sample input 1

```
2 3
B.B
.B.

2 2
BB
BB

0 0
```

Sample output 1

```
.B.
.B.

BB
BB
```

Problem information

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