Game of the life (2) P27283_en

This exercise is a continuation of the exercise **problem://problemsjutge.org:problems/p1/roura/vida-1.pbm**

Let M_0 be a matrix with bacteria at the initial time, and let M_1, M_2, M_3, ...be the matrices at the times 1, 2, 3, ...Write a program that, given M_0, finds the cycle that is obtained starting at M_0, that is, the first and shortest sequence of matrices $M_i, M_{i+1}, \ldots, M_{j-1}, M_j$ such that $M_{j+1} = M_i$. Suppose $j < 100$.

Input

Input consists of the description of the matrix M_0: two strictly positive natural numbers n and m, followed by n lines, each one with m characters: '`B`' if the position has a bacterium, and '`.`' if the position is empty.

Output

Print the matrices of the cycle $M_i, M_{i+1}, \ldots, M_{j-1}, M_j$ separated by an empty line.

Sample input 1

```
7 7
....BBB
.B.BBBB
.B.BBBB
..BBBBB
.B.BBBB
.B.BBBB
....BBB
```

Sample output 1

```
.......
.......
.......
BBB....
.......
.......
.......

.......
.......
.B.....
.B.....
.B.....
.......
.......
```

Sample input 2

```
2 2
BB
..
```

Sample output 2

```
..
..
```

Sample input 3

```
10 10
..........
...BBBB...
...B..B...
.BBB..BBB.
.B......B.
.B......B.
.BBB..BBB.
...B..B...
...BBBB...
..........
```

Sample output 3

```
..........
...BBBB...
...B..B...
.BBB..BBB.
.B......B.
.B......B.
.BBB..BBB.
...B..B...
...BBBB...
..........

....BB....
...BBBB...
..........
.B.B..B.B.
BB......BB
BB......BB
.B.B..B.B.
..........
...BBBB...
....BB....

...B..B...
...B..B...
..BB..BB..
BBB....BBB
..........
..........
BBB....BBB
..BB..BB..
...B..B...
...B..B...
```

Problem information

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