Bonus1 - Kings on the Chessboard

Time Limit: 15 secs.

Problem Description

Consider an $n \times m$ chessboard, where each grid on the chessboard is either empty or has a rook placed on it. Suppose you want to place kings on some of the empty grids, in a way such that, no kings are placed next to each other.

Determine the maximum number of kings that can be placed, and compute a valid way that achieves the maximum number.

Input Format

The first line consists of two integers n and m, the size of the chessboard. Each of the next n lines contains a string of length m, where the characters in the string are either '.' or '*', indicating the corresponding grid is empty or occupied by a rook.

You may assume that

- $1 \leq n, m \leq 10^5$.

Output Format

Output the maximum number of kings that can be placed in the first line. In the next n lines, output a valid way of placing the maximum number of kings. Replace the character '.' with 'C', if you place a king on that grid.

If there are multiple answers, you can print any of them.

Sample Input 1

```
3 3
*.*
...
*.*
```

Sample Output 1

```
4
*C*
C.C
*C*
```

Sample Input 2

```
2 4
*..*
....
```

Sample Output 2

```
3
*C.*
C.C.
```

Hint.

According to the constraints, formulate the scenario as a problem in **bipartite graphs**.