

# Garden

Vasja is a very beautiful country garden, which is a rectangular box the size of  $n \times m$ , divided by  $n \cdot m$  square cells. One day, Bob remembered that he needed to pave the path between  $k$  cells with important buildings - for that he can fill in some of the concrete cells of the garden.

About every cell of the garden known number of  $a_{ij}$ , which means the number of flowers growing in the cell with coordinates  $(i, j)$ . When pouring concrete all the flowers that grow in the cell dies.

Bob wants to pour concrete, some cells so that the following conditions:

- \*  $k$  all the important cells have to be filled with concrete
- \* Each of the major cell to any other cells there was an important way of concrete poured, the cells under the condition that neighboring cells are considered as having a common side
- \* Total number of dead plants should be minimal

Since Wasi quite a large garden, it asks you to help him.

## Input

The first line of input data are given three integers  $n$ ,  $m$  and  $k$  ( $1 \leq n, m \leq 100$ ,  $n \cdot m \leq 200$ ,  $1 \leq k \leq \min(n \cdot m, 7)$ ) - the size of the garden and the number of important cells. Next the  $n$  rows of  $m$  numbers are given in each of  $a_{ij}$  ( $1 \leq a_{ij} \leq 1000$ ) - the number of colors in the cells. Then the  $k$  rows are the coordinates of the critical cells in the form « $xy$ » (without quotation marks) ( $1 \leq x \leq n$ ,  $1 \leq y \leq m$ ). numbers are located on the same line, separated by spaces. It is guaranteed that all  $k$  important cells have different coordinates.

## Output

In the first line of the output single integer - the minimum number of deaths in the construction of plants. Then output  $n$  lines of  $m$  characters each - the plan of the garden, where the symbol « $X$ » (a capital letter  $X$ ) is flooded with concrete cell, and the symbol "." (Point) - is not flooded. If several solutions, any output.

## Input

```
3 3 2
1 2 3
1 2 3
1 2 3
1 2
3 3
Output
```

```
9
.X.
.X.
.XX
```