

Problem N. Cherry and Bits

Time Limit 1000 ms

Code Length Limit 50000 B

OS Linux

Cherry has a binary matrix A consisting of N rows and M columns. The rows are numbered from 1 to N , columns are numbered from 1 to M . Element at row i ($1 \leq i \leq N$) and column j ($1 \leq j \leq M$) is denoted as A_{ij} . All elements of A are either 0 or 1.

He performs Q queries on matrix. Each query is provided by four integers x_1, y_1, x_2, y_2 which define the rectangle, where (x_1, y_1) stands for the coordinates of the top left cell of the rectangle, while (x_2, y_2) stands for the coordinates of the bottom right cell. You need to flip all the bits i.e. (0 to 1, 1 to 0) that are located fully inside the query rectangle.

Finally, print the matrix after performing all the queries.

Note: x_1 represents the row number while y_1 represents the column number.

Input:

- The first line of the input contains two integers N and M — the number of rows and the number of columns in the matrix.
- Each of the next N lines contains a string of length M , where the j^{th} character of i^{th} line denotes the value of $A_{i,j}$.
- Next line contains an integer Q — the number of queries.
- Then follow Q lines with queries descriptions. Each of them contains four space-separated integers x_1, y_1, x_2, y_2 — coordinates of the up left and bottom right cells of the query rectangle.

Output:

Print the matrix, in the form of N strings, after performing all the queries.

Constraints

- $1 \leq N, M \leq 1000$
- $0 \leq A_{ij} \leq 1$
- $1 \leq Q \leq 10^6$
- $1 \leq x_1 \leq x_2 \leq N$
- $1 \leq y_1 \leq y_2 \leq M$

Sample 1

Input	Output
2 2 00 00 3 1 1 1 1 2 2 2 2 1 1 2 2	01 10

****Example case 1:****

After processing the 1st query **1 1 1 1**, matrix becomes:

$$\begin{bmatrix} 10 \\ 00 \end{bmatrix}$$

After processing the 2nd query **2 2 2 2**, the matrix becomes:

$$\begin{bmatrix} 10 \\ 01 \end{bmatrix}$$

After processing the 3rd query **1 1 2 2**, matrix becomes:

$$\begin{bmatrix} 01 \\ 10 \end{bmatrix}$$

We need to output the matrix after processing all queries.