Reversing submatrices   X66668_en

Write a program that, given an input matrix v (of characters) with dimensions $n \times m$ and several cases of indices $0 \leq i_1 \leq i_2 < n$ and $0 \leq j_1 \leq j_2 < m$, modifies v by applying a central reverse to its submatrix of elements $v[i][j]$ for $i_1 \leq i \leq i_2$ and $j_1 \leq j \leq j_2$. Your program should write the resulting matrix for each case, whose result depends also on previous cases, as they have modified the matrix previously.
Make an adequate use of the functions of the previous exercises.
Exam score: 2.5 **Automatic part:** 20%

Input

The first line of the input has two values $n, m \geq 1$. Next, there is the description of a matrix v of $n \times m$ characters, that is, n lines with m characters at each line, where each character is a lowercase English letter. There is a blank line after the matrix description. Next, there are several cases of queries for modifying v by making a central reverse of a submatrix of v, each one consisting in four integers i_1, j_1, i_2, j_2 holding $0 \leq i_1 \leq i_2 < n$ and $0 \leq j_1 \leq j_2 < m$. Each query appears in a different line.

Output

For each query, there is the corresponding modification of v, written in the same format as above (the dimensions must not be written), followed by a blank line. Note that the result of each query depends on all the previous queries, as they have modified v previously.

Sample input

```
4 6
nwlrbb
mqbhcd
arzowk
kyhidd

0 3 2 5
0 0 3 5
0 0 2 5
1 2 2 3
0 2 1 5
1 0 1 2
0 1 3 3
0 1 2 5
0 3 1 5
```

Sample output

```
nwlkwo
mqbdch
arzbbr
kyhidd

ddihyk
rbbzra
hcdbqm
owklwn

mqbdch
arzbbr
kyhidd
owklwn

mqbdch
arihbr
kybzdd
owklwn

mqrbhi
arhcdb
kybzdd
owklwn
```

```
mqrbhi                          mddrac
hracdb                          hbdybz
kybzdd                          kihwkl
owklwn                          obrqwn

mlkwhi                          mddzby
hzbydb                          hbdcar
kcardd                          kihwkl
obrqwn                          obrqwn
```

Problem information

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Generation : 2015-12-12 21:15:00