

2025 Digital Lab

Assume that you work for the Digital Processing Lab. They ask you to write a program with an input binary matrix A , which contains the pattern to search on other binary matrix B . The input file include the size and elements for both A and B .

The recognition process consists in scanning row by row (horizontal scanning) the matrix B , when a pattern is located on B you must mark this pattern.

To mark a located pattern change '1' to '2' and '0' to '*' on B .

The output file of your program will be the matrix B with the located patterns marked.

Input

Input consists on several test cases.

For each case, the first line of the input contains the size of A , next lines contains the matrix A row by row, next line contains the size of B and next lines contains the matrix B row by row.

Output

For each case, the output is the matrix B with the located patterns marked.

Sample Input

```
2 2
1 0
1 1
5 5
1 1 0 0 0
0 1 1 0 0
1 0 0 1 0
1 1 1 1 0
0 0 1 1 1
1 1
1
5 5
1 1 0 0 0
0 1 1 0 0
1 0 0 1 0
1 1 1 1 0
0 0 1 1 1
1 1
0
5 5
1 1 0 0 0
0 1 1 0 0
1 0 0 1 0
1 1 1 1 0
0 0 1 1 1
2 6
```

```
1 0 0 1 0 1
1 1 1 0 1 0
5 5
1 1 0 0 0
0 1 1 0 0
1 0 0 1 0
1 1 1 1 0
0 0 1 1 1
```

Sample Output

```
1 2 * 0 0
0 2 2 0 0
2 * 0 1 0
2 2 1 2 *
0 0 1 2 2
2 2 0 0 0
0 2 2 0 0
2 0 0 2 0
2 2 2 2 0
0 0 2 2 2
1 1 * * *
* 1 1 * *
1 * * 1 *
1 1 1 1 *
* * 1 1 1
1 1 0 0 0
0 1 1 0 0
1 0 0 1 0
1 1 1 1 0
0 0 1 1 1
```