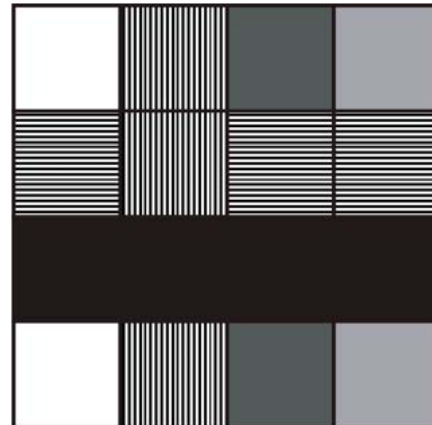


## 4424 Painting

Ethan wants to draw a painting on an  $m \times n$  board. He can draw some strips on the board using a paintbrush of width one. In each step, he must choose a new color and paint a full column or a full row. He has a great image to be drawn on the board, but he doesn't know which color to use first. You must help him in finding out the order of colors.



### Input

There are multiple test cases in the input. The first line of each test case contains two integers  $m$  and  $n$ , the size of the board ( $0 < m, n < 100$ ). Following the first line, there are  $m$  lines with  $n$  integers denoting the color in each cell. All the colors are positive integer numbers less than 10000. The input is terminated with a single line containing two consecutive zeros.

### Output

For each test case, write a single line containing the order of colors used to paint the board. If there are several answers, output the one which is lexicographically smallest (considering each number as a symbol).

### Sample Input

```
4 4
1 5 4 3
6 5 6 6
2 2 2 2
1 5 4 3
3 2
1 1
2 3
2 3
0 0
```

### Sample Output

```
1 3 4 6 5 2
2 3 1
```