Problem E
Monotony

You are given an $r \times c$ grid. Each cell of this grid is filled with a number between 1 and $r \cdot c$ inclusive, and each cell's number is distinct.

Define a grid of numbers to be *monotonic* if each row and column is either increasing or decreasing (this can be different for each row or column).

Define a *subgrid* of the grid as follows: First choose some nonempty subset of the rows and columns. Next, take elements that lie in both the chosen rows and columns in the same order.

There are $(2^r - 1)(2^c - 1)$ nonempty subgrids of the given grid. Of these subgrids, count how many are monotonic.

Consider this grid:

1	2	5
7	6	4
9	8	3

There are nine 1×1 subgrids, nine 1×2's, three 1×3's, nine 2×1's, nine 2×2's, three 2×3's, three 3×1's, three 3×2's, and one 3×3. They are all monotonic, for $9+9+3+9+9+3+3+3+1 = 49$ monotonic subgrids.

Input

Each test case will begin with a line with two space-separated integers r and c ($1 \leq r, c \leq 20$), which are the dimensions of the grid.

Each of the next r lines will contain c space-separated integers x ($1 \leq x \leq r \cdot c$, all x's are unique). This is the grid.

Output

Output a single integer, which is the number of monotonic subgrids in the given grid.

Sample Input 1	Sample Output 1
3 3 1 2 5 7 6 4 9 8 3	49

Sample Input 2	Sample Output 2
4 3 8 2 5 12 9 6 3 1 10 11 7 4	64