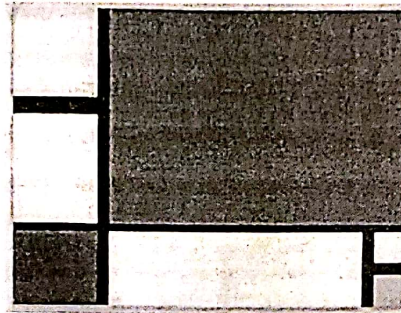


12. Tiffany

Program Name: Tiffany.java

Input File: tiffany.dat

Tiffany is a fan of the Dutch art movement *De Stijl*. She especially likes the works of artist Piet Mondrian.



Piet Mondrian, Composition with Red, Blue, and Yellow, 1930.

Many of Mondrian's best known works are made of straight lines and solid colors like the one above. They typically use few colors. Inspired by this art, Tiffany set out to make her own paintings. Here is one of Tiffany's paintings:

1	1	2	2
1	1	2	2
3	3	3	3

Tiffany's canvas is made of R rows, each with C cells. Each cell in her painting has a color, represented by a positive integer. A *square* is defined using two cells: an upper left cell (r_1, c_1) and a lower right cell (r_2, c_2) , where $r_2 - r_1 = c_2 - c_1$. A square is *monochromatic* if every cell (r, c) where $r_1 \leq r \leq r_2$ and $c_1 \leq c \leq c_2$ is the same color. For example, using 1-based indexing for the rows and columns, $(1, 1)$ to $(2, 2)$ is a monochromatic square (all cells have color 1), but $(2, 2)$ to $(3, 3)$ is not (there is a cell of color 1, a cell of color 2, and 2 cells of color 3). Furthermore $(3, 1)$ to $(3, 4)$ is not a square, because there are a different number of rows and columns.

Given the layout of Tiffany's painting, find the number of monochromatic squares in the painting.

Input: The first line of input has an integer T ($1 \leq T \leq 20$), the number of test cases. Each test case begins with two positive integers R and C , the number of rows and columns in Tiffany's painting. The next R lines each have C space separated integers, the color of each cell of her painting.

The sum of $R * C$ over all test cases will not exceed 6,000,000. Each color in the painting is a positive integer between 1 and 1,000,000,000, both bounds inclusive.

Output: For each test case, output the number of monochromatic squares in the grid, formatted with the case number as in the samples.

Sample Input:

```
2
3 4
1 1 2 2
1 1 2 2
3 3 3 3
4 3
8 7 8
5 3 1
2 4 6
6 2 1
```

Sample Output:

```
Case #1: 14
Case #2: 12
```

Sample Explanation: In the first sample, there are 5 squares of color 1, 5 squares of color 2, and 4 squares of color 3, for a total of 14 monochromatic squares.
In the second sample, all monochromatic squares are 1x1 squares.