2. Python: Dominant Cells

There is a given list of lists of integers that represent a 2-dimensional grid with n rows and m columns. A cell is called a *dominant cell* if it has a strictly greater value than all of its neighbors. Two cells are neighbors when they share a common side or a common corner, so a cell can have up to 8 neighbors. Find the number of dominant cells in the grid.

Function Description

Complete the function *numCells* in the editor below.

numCells has the following parameter(s):
  int grid[n][m]: a 2-dimensional array of integers

Returns

  int: the number of dominant cells in the grid

Constraints

- $1 \le n, m \le 500$
- There are at least 2 cells in the grid.
- $1 \le grid[i][j] \le 100$

▼ **Input Format Format for Custom Testing**

Input from stdin will be processed as follows and passed to the function.

The first line contains an integer n, the number of rows in the grid.
The second line contains an integer m, the number of columns in the grid.
Next, n lines follow. The *i-th* of them contains m integers denoting the cells in the *i-th* row of the grid.

▼ **Sample Case 0**

Sample Input 0

```
STDIN          Function
-----          --------
3        →     n = 3
3        →     m = 3
1 2 7 →        grid = [[1, 2, 7],
[4, 5, 6], [8, 8, 9]]
4 5 6
8 8 9
```

Sample Output 0

```
2
```

Explanation 0
There are 3 cells that have strictly greater values than all their neighboring cells. These cells are:

- the bottom right value, 9, with neighbors of 5, 6 and 8
- the top right value, 7, with neighbors of 2, 5 and 6

Notice that the 8 at bottom left is not a dominant cell. It is not strictly greater than the cell to its right with a value of 8.

▼ **Sample Case 1**

Sample Input 1

```
1
4
1 2 2 1
```

Sample Output 1

```
0
```

Explanation 1
None of the cells is a dominant cell as each one has one neighbor with a greater or equal value.

▼ **Sample Case 2**

Sample Input 2

```
4
3
9 1 1
1 1 9
9 1 1
1 1 9
```

Sample Output 2

```
4
```

Explanation 2
All cells with a value of 9 are dominant. Notice that for each of these cells, all its neighboring cells have value 1 which is strictly smaller than 9. None of the cells with value 1 is a dominant cell.

```python
#!/bin/python3

import math
import os
import random
import re
import sys


#
# Complete the 'numCells' function below.
#
# The function is expected to return an INTEGER.
# The function accepts 2D_INTEGER_ARRAY grid as parameter.
#

def numCells(grid):
    mx = 0
    filled = [(i,j) for i,row in enumerate(grid) for j,n in enumerate(row) if n]
    while filled:
        region = [filled.pop()]
        count = 0
        while region:
            n=region.pop()
```

Line: 36 Col: 27

Raw Format