

6440. Difference of Number of Distinct Values on Diagonals

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Given a **0-indexed** 2D grid of size $m \times n$, you should find the matrix answer of size $m \times n$.

The value of each cell (r, c) of the matrix answer is calculated in the following way:

- Let $topLeft[r][c]$ be the number of **distinct** values in the top-left diagonal of the cell (r, c) in the matrix grid.
- Let $bottomRight[r][c]$ be the number of **distinct** values in the bottom-right diagonal of the cell (r, c) in the matrix grid.

Then $answer[r][c] = |topLeft[r][c] - bottomRight[r][c]|$.

Return the matrix answer.

A **matrix diagonal** is a diagonal line of cells starting from some cell in either the topmost row or leftmost column and going in the bottom-right direction until reaching the matrix's end.

A cell (r_1, c_1) belongs to the top-left diagonal of the cell (r, c) , if both belong to the same diagonal and $r_1 < r$. Similarly is defined bottom-right diagonal.

User Accepted:	0
User Tried:	1
Total Accepted:	0
Total Submissions:	1
Difficulty:	Easy

Example 1:

1	2	3
3	1	5
3	2	1

1	2	3
3	1	5
3	2	1

1	2	3
3	1	5
3	2	1

1	2	3
3	1	5
3	2	1

Input: grid = [[1,2,3],[3,1,5],[3,2,1]]

Output: [[1,1,0],[1,0,1],[0,1,1]]

Explanation: The 1st diagram denotes the initial grid.

The 2nd diagram denotes a grid for cell (0,0), where blue-colored cells are cells on its bottom-right diagonal.

The 3rd diagram denotes a grid for cell (1,2), where red-colored cells are cells on its top-left diagonal.

The 4th diagram denotes a grid for cell (1,1), where blue-colored cells are cells on its bottom-right diagonal and red-colored cells are cells on its top-left diagonal.

– The cell (0,0) contains [1,1] on its bottom-right diagonal and [] on its top-left diagonal. The answer is $|1 - 0| = 1$.

– The cell (1,2) contains [] on its bottom-right diagonal and [2] on its top-left diagonal. The answer is $|0 - 1| = 1$.

– The cell (1,1) contains [1] on its bottom-right diagonal and [1] on its top-left diagonal. The answer is $|1 - 1| = 0$.

The answers of other cells are similarly calculated.

Example 2:

Input: grid = [[1]]

Output: [[0]]

Explanation: – The cell (0,0) contains [1] on its bottom-right diagonal and [] on its top-left diagonal. The answer is $|0 - 0| = 0$.

Constraints:

- $m == \text{grid.length}$
- $n == \text{grid}[i].\text{length}$
- $1 \leq m, n, \text{grid}[i][j] \leq 50$

JavaScript

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```
1 const initialize2DArray = (n, m) => [...Array(n)].map(() => Array(m).fill(-1));
2
3 const differenceOfDistinctValues = (g) => {
4   let n = g.length, m = g[0].length, res = initialize2DArray(n, m);
5   for (let i = 0; i < n; i++) {
6     for (let j = 0; j < m; j++) {
```

```
7      let tl = new Set(), br = new Set();
8      for (let v = 1; i - v >= 0 && j - v >= 0; v++) tl.add(g[i - v][j - v])
9      for (let v = 1; i + v < n && j + v < m; v++) br.add(g[i + v][j + v])
10     res[i][j] = Math.abs(tl.size - br.size);
11   }
12 }
13 return res;
14 };
```

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