

# 2D Difference Array

You are given a 2D integer matrix **mat**[][] of size  $n \times m$  and a list of  $q$  operations **opr**[][[]]. Each operation is represented as an array  $[v, r1, c1, r2, c2]$ , where:

- **v** is the value to be added
- **(r1, c1)** is the top-left cell of a submatrix
- **(r2, c2)** is the bottom-right cell of the submatrix (inclusive)

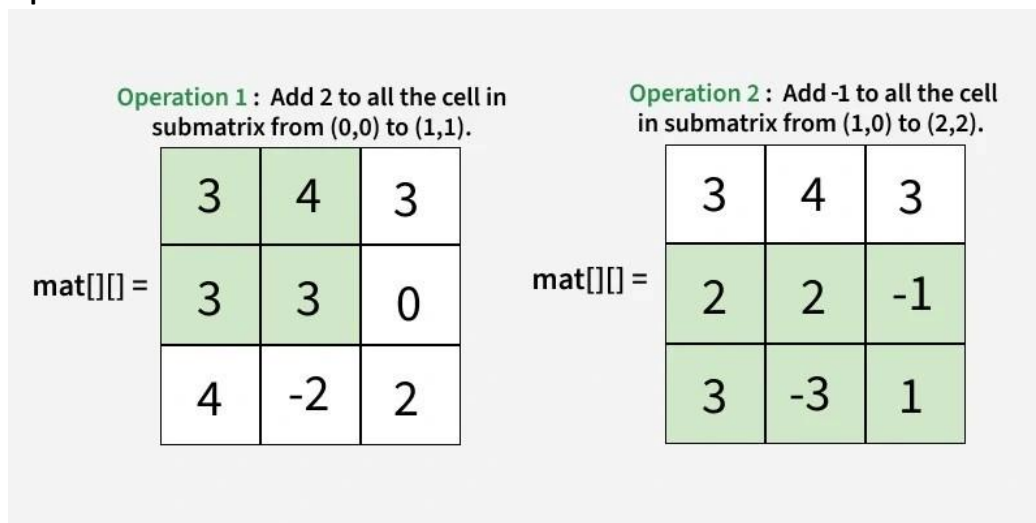
For each of the  $q$  operations, add  $v$  to every element in the submatrix from  $(r1, c1)$  to  $(r2, c2)$ . Return the final matrix after applying all operations.

**Examples:**

**Input:** **mat**[][] = [[1, 2, 3],  
[1, 1, 0],  
[4, -2, 2]]  
**opr**[][[]] = [[2, 0, 0, 1, 1], [-1, 1, 0, 2, 2]]

**Output:** [[3, 4, 3],  
[2, 2, -1],  
[3, -3, 1]]

**Explanation:**



**Constraint:**

$1 \leq n \times m, q \leq 10^5$

$0 \leq r1 \leq r2 \leq n - 1$

$0 \leq c1 \leq c2 \leq m - 1$

$-10^4 \leq \text{mat}[i][j], v \leq 10^4$