Day_10: DSA

Day-10 Leetcode 3191 Minimum Operations to Make Binary Array Elements Equal to One I

nums = [0,1,1,1,0,0]

⇒ [1,1,1,1,1,1] → target } 3-operations

Code:

```
class Solution:
    def minOperations(self, nums: List[int]) -> int:
        def flip(nums, i):
            nums[i] = 0 if nums[i] else 1

        res = 0
        for i in range(len(nums)-2):
            if nums[i] == 0:
                flip(nums, i)
                flip(nums, i+1)
                flip(nums, i+2)
                res += 1
        if not nums[i-1] or not nums[-2]
            return -1
        return res
```

Striver's SDE Sheet (Arrays)

- Set Matrix Zero

↳ given a matrix {if an element in the matrix is 0 then you will have to set its entire column and row to 0 then return the matrix. }

Code:

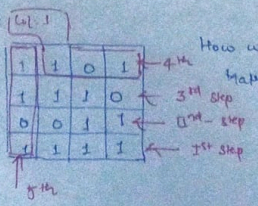
```
def zeroMatrix(matrix, n, m):
    row = [0] * n      # row array
    col = [0] * m      # colu array

    # Traverse the matrix:
    for i in range(n):
        for j in range(m):
            if matrix[i][j] == 0:
                # mark ith index of row with 1
                row[i] = 1
                # mark jth index of col with 1
                col[j] = 1

    # finally, mark a[i,j] as 0
    # if row[i] or col[j] is marked 1.
    for i in range(n):
        for j in range(m):
            if row[i] or row[j]:
                matrix[i][j] = 0
    return matrix
```

T.C = O(2*(N*M))
S.C = O(N) + O(M)

- optimal Sol?

↳ Instead of Taking extra column from outside But Here we will think if we can take matrix first row, column to keep track.

for ex:



How we will deal with matrix

We will not touch first row and column

Sol^{n}.

```
def zeroMatrix(matrix, n, m):
    # int row[n] = {0};
    # int col[m] = {0};

    col0 = 1
    # Step1: Traverse the matrix and
    # mark 1st row & col accordingly.
    for i in range(n):
        for j in range(m):
            if matrix[i][j] == 0:
                # mark i-th row
                matrix[i][0] = 0

                # mark j-th column
                if j != 0:
                    matrix[0][j] = 0
                else:
                    col0 = 0

    # Step2: Mark with 0 from (1,1) to (n-1, m-1):
    for i in range(1,n):
        for j in range(1,m):
            if matrix[i][0] == 0 or matrix[0][j] == 0:
                matrix[i][j] = 0

    # Step3: finally mark the 1st col & then 1st row:
    if matrix[0][0] == 0:
        for j in range(m):
            matrix[0][j] = 0

    if col0 == 0:
        for i in range(n):
            matrix[i][0] = 0

    return matrix
```