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Assignment Questions

Q1 First Missing Integer

$A = [\underset{0}{3}, \underset{1}{4}, \underset{2}{-1}, \underset{3}{1}]$

i = 0

$3 \leftrightarrow -1 \quad [\underset{0}{-1}, \underset{1}{4}, \underset{2}{3}, \underset{3}{1}]$

-1 can't be swapped

i = 1

$4 \leftrightarrow 1 \quad [\underset{0}{-1}, \underset{1}{1}, \underset{2}{3}, \underset{3}{4}]$

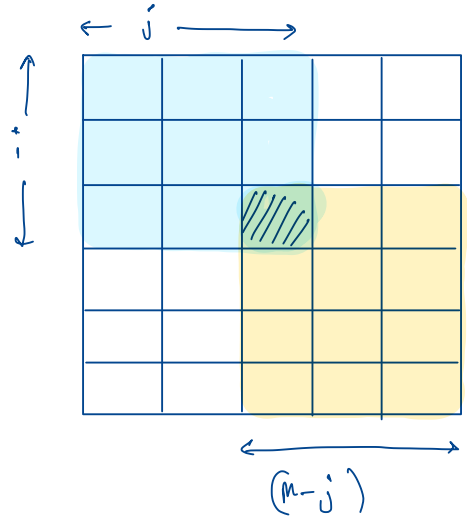
$1 \leftrightarrow -1 \quad [\underset{0}{1}, \underset{1}{-1}, \underset{2}{3}, \underset{3}{4}]$

-1 can't be swapped

$A = [1, -1, 3, 4]$ as remaining all elements are at correct position

⇒ Missing element (First) = (2)

Q2 Sum of all submatrices



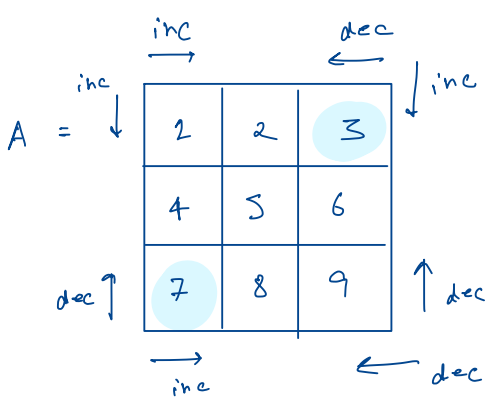
⇒ We need to figure out how many times does each element appear in all the submatrices

$[i, N-1] = N-1-i+1 = (N-i)$

$\therefore$ Occurences $= (i \times j) + (N-i) \times (M-j)$

⇒ Contribut^n $= A[i][j] \times [(i \times j) + (N-i) \times (M-j)]$

Q3 Search in row-wise and column wise matrix



Observation

We can only begin search either from top-right or bottom-left corner

Why ?

→ Because we are free to move in either direction based on value of element

Code

```
i = 0 , j = A[0].length - 1 , min = MAX_INT;

while ( i < N && j >= 0 )
    if (A[i][j] = B) {
        min = Math.min( ix1000+j , min);
        j--;
    } else if (A[i][j] > B) {
        j--;
    } else {
        i++;
    }
}
return min == MAX_INT? -2 : min;
```