

Ques: Set Matrix Zeros

Approach-2

0	1	2	3	4	5
F	T	T	F	T	F

col

0	1	2	3	4	5	
0	3	0	0	1	0	3
1	0	0	0	0	0	0
2	4	0	0	4	0	3
3	0	0	0	0	0	0

rows

T.C. = $O(m \times n)$

A.S. = $O(m + n)$

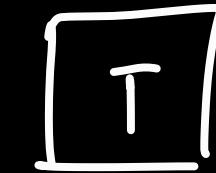
Ques: Set Matrix Zeros

	0	1	2	3	4	5
0	3	0	0	1	0	3
1	0	0	0	0	0	0
2	4	0	0	4	0	3
3	0	0	0	0	0	0

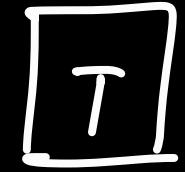
Ques: Set Matrix Zeros

	0	1	2	3	4	5
0	0	0	0	0	0	0
1	0	4	0	0	0	7
2	0	0	0	0	0	0
3	0	0	0	0	0	0

$m \times n$

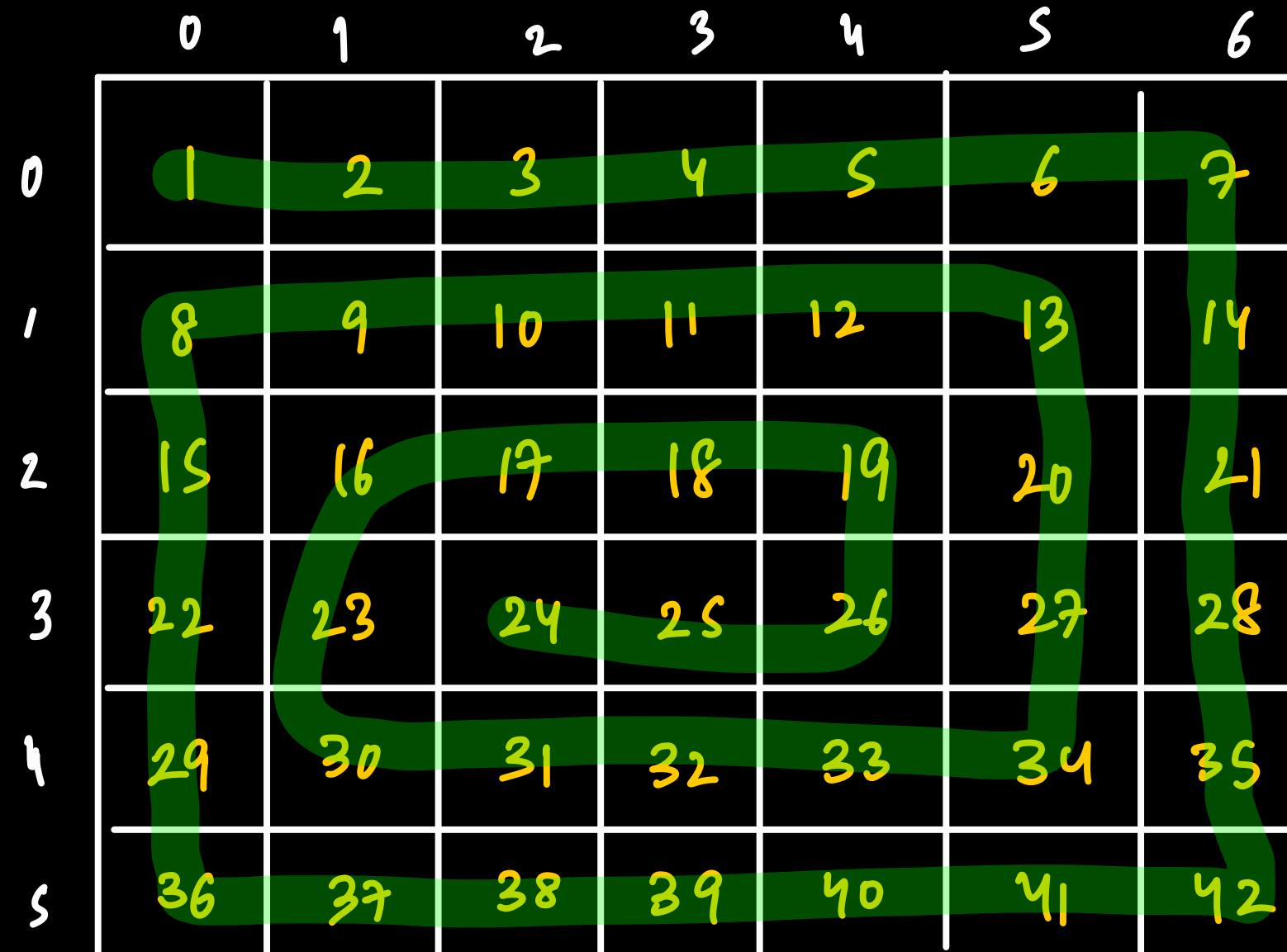


zeroRow



zeroCol

Ques: Spirally Traversing a Matrix



Ques: Spirally Traversing a Matrix

	0	1	2	3	4	5	6
0	1	2	3	4	5	6	7
1	8	9	10	11	12	13	14
2	15	16	17	18	19	20	21
3	22	23	24	25	26	27	28
4	29	30	31	32	33	34	35
5	36	37	38	39	40	41	42

0th row R

Last Col D

Last Row - Reverse L

0th col - Reverse U

Ques: Spirally Traversing

	0	1	2	3	4	5	6	
0	1	2	3	4	5	6	7	
1	8	9	10	11	12	13	14	
2	15	16	17	18	19	20	21	
3	22	23	24	25	26	27	28	
4	29	30	31	32	33	34	35	
5	36	37	38	39	40	41	42	

minc maxc

T.C. = $O(m \cdot n)$ A.S. = $O(1)$

while() {

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for(j=minc to maxc){
    sout(arr[minr][j]);
    minr++;
}

for(i=minr to maxr){
    sout(arr[i][maxc]);
}

maxc--;
for(j=maxc; j>=minc; j--){
    sout(arr[maxr][j]);
}

maxr--;
for(i=maxr to minr){
    sout(arr[i][minc]);
}

minc++;
}

```

Ques: Multiply Matrices

$$\begin{array}{c}
 \begin{array}{c}
 \begin{array}{|c|c|} \hline 0 & 1 \\ \hline 1 & 2 \\ \hline 4 & 3 \\ \hline \end{array}
 \end{array} & \times & \begin{array}{c}
 \begin{array}{c}
 \begin{array}{|c|c|} \hline 0 & 1 \\ \hline -2 & 1 \\ \hline 3 & 0 \\ \hline \end{array}
 \end{array} & = & \begin{array}{c}
 \begin{array}{c}
 \begin{array}{|c|c|} \hline 0 & 1 \\ \hline 4 & 1 \\ \hline 1 & 4 \\ \hline \end{array}
 \end{array}
 \end{array} \\
 A & & B & & C
 \end{array}$$

$C[i][j] = A[i][k] \text{ i}^{\text{th}} \text{ row} \times B[k][j] \text{ j}^{\text{th}} \text{ col}$

$$= \sum_{k=0}^{n-1} A[i][k] + B[k][j]$$