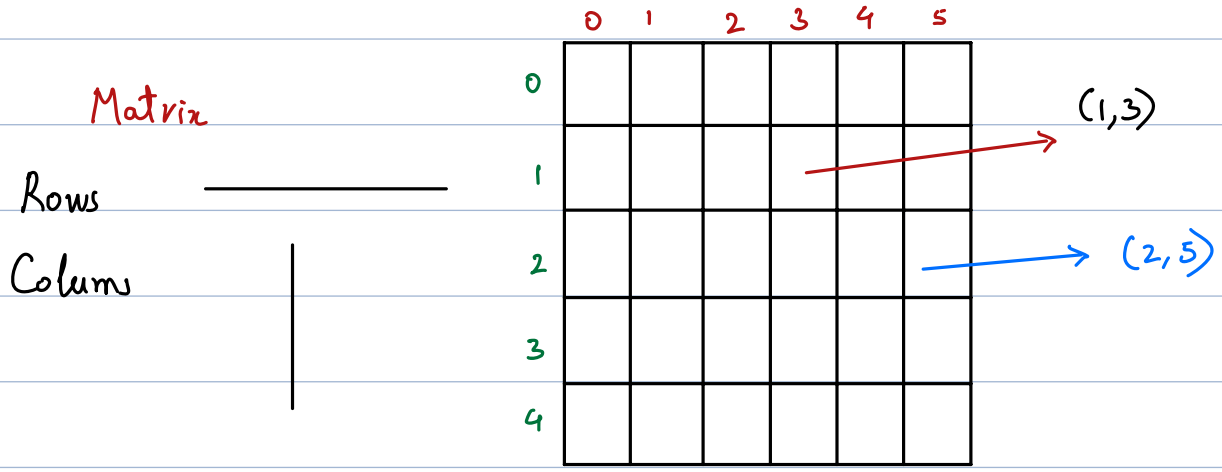
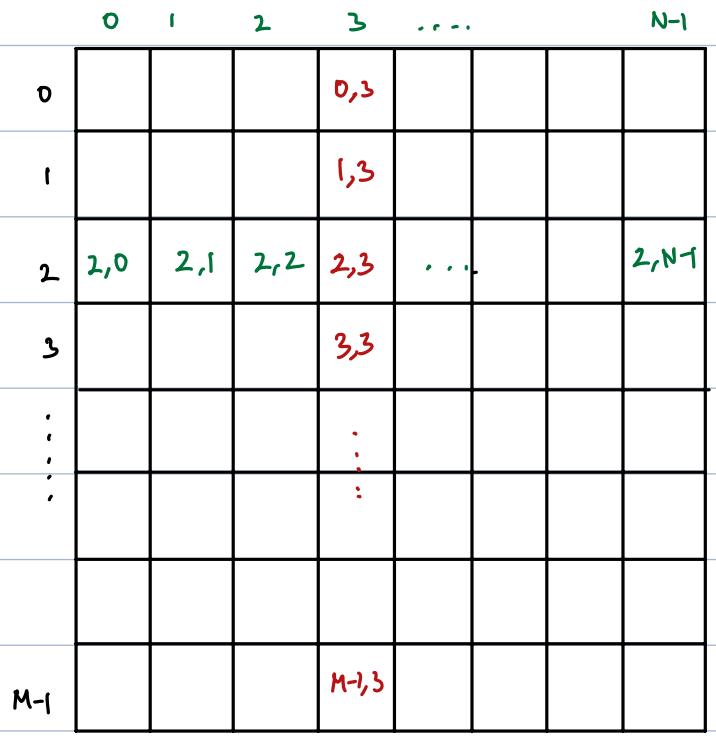
1) Watch all pending lectures
2) Complete HW & assignments

9th June



rows column

M x N



while I am moving in a column row index will keep changing

while I am moving in a row, column index will keep changing

```
for(i=0; i<M; i++){
    for(j=0; j<N; j++){
        print(M[i][j])
    }
}
```

TC: O(MN)

SC: O(1)

Q1) Given mat[M][N], print row wise sum?

TC: O(NM)

mat[3][4]

	0	1	2	3	
0	3	2	5	1	11
1	0	5	6	3	14
2	7	11	6	2	26

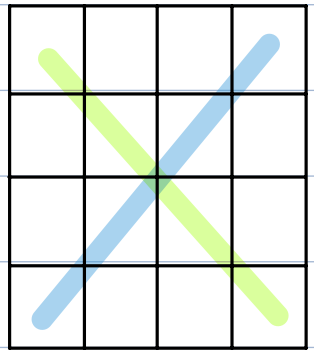
```
for(i=0; i<M; i++){
    sum=0
    for(j=0; j<N; j++){
        sum = sum + A[i][j]
    }
    print(sum)
}
```

Q2) Given a mat[M][N], print column wise sum?

HW

0	1	2	3
3	2	5	1
0	5	6	3
7	11	6	2

Q3) Given a matrix [N][N] print diagonals

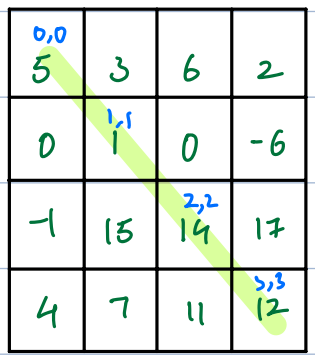


```
for(i=0; i<N; i++){
    for(j=0; j<N; j++){
        if(i==j){print (M[i][j])}
    }
}
```

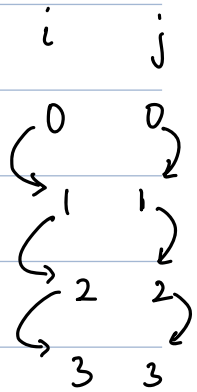
TC: $O(N^2)$

TC: $O(N)$

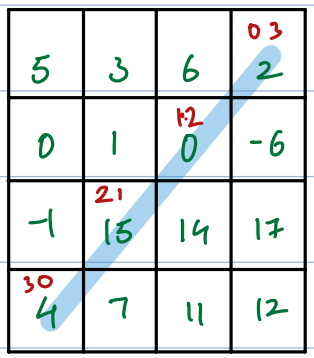
SC: $O(1)$



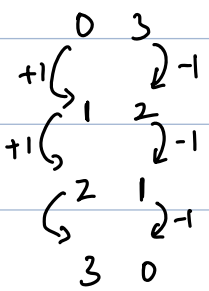
Green diagonal: 5 1 14 12




```
i=0    j=0
while(i<N and j<N){
    print(A[i][j])
    i++
    j++
}
```



Blue diagonal: 2 0 15 4




```
i=0    j=N-1
while(i<N and j>=0){
    print(A[i][j])
    i++
    j--
}
```

Q4) Print diagonal from right to left starting with (l, r)

(M x N)

	0	1	2	3	4
0	1	2	3	03 4	5
1	6	7	12 8	9	10
2	15	21 14	13	12	11
3	30 16	17	18	19	20

l → l+1

r → r-1

```
i = l        j = r
while ( j >= 0 && i < M ){
    print (A[i][j])
    i++
    j--
}
```

l = 0 r = 3

Ans: 4 8 14 16

l = 0 r = 1

Ans: 2 6

l = 1 r = 2

Ans: 8, 14, 16

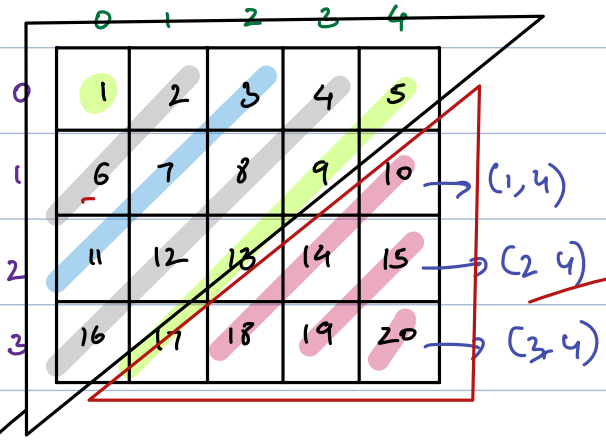
l = 2 r = 4

Ans: 11, 19

l = 0 r = 3

1	2
2	1
3	0

Q Print all diagonals from R-L for all diagonals starting from 0^{th} row



1

2 6

3 7 11

4 8 12 16

5 9 13 17

all digonals starting at 0 row

```
for(c=0; c<N; c++){
    i=0  j=c
    while(j>=0 && i<M){
        print(A[i][j])
        i++
        j--
    }
}
```

all digonals starting at N-1 colum except 0,N-1

```
for(c=1; c<=M-1; c++){
    i=c, j=N-1
    while(j>=0 && i<M){
        print(A[i][j])
        i++
        j--
    }
}
```

Q5) Given a mat[N][N], find the transpose inplace. → SC: O(1)

Given input mat[][] should update

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25

(Q6) Given mat [N][N], rotate the metrix by 90° in clockwise direction from TR as refernce, inplace

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25