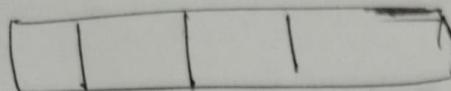


2D Array in Memory

char



100 101 102 103  
104 108 112  $\rightarrow$  Addresses

$\rightarrow$  row Major

0	1	2
3	4	5
6	7	8

$3 \times 3$

i = row  
j = col

0	1	2
101	104	108

3	4	5
112	116	120

6	7	8
124	128	132

0	101
1	104
2	108

3
4
5

6
7
8

Spiral Matrix

Approach

$\frac{n}{2}$  iterations

Start row

end row

Start col

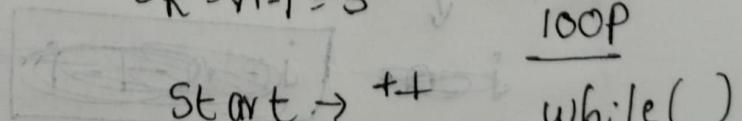
end col

1st	2nd
0	$i-1+i = i$
$3(n-1)$	2
0	1
$3(m-1)$	2

SR = 0

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16

ER = n-1 = 3



Start  $\rightarrow$  ++

end  $\rightarrow$  --

loop

while( )

2

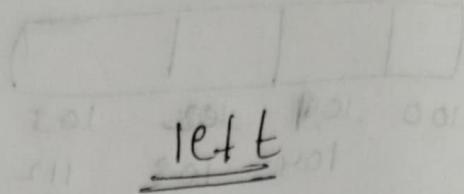
) top

) Right

3) bottom

4) left

y



5R

y TOP

5C  $\rightarrow$  EC

8	f	a	0
2	n	e	
7			
8	f	a	

ER-1  $\rightarrow$  SR+1

SR+1  $\rightarrow$  ER y Right

6 EC-1  $\rightarrow$  SC y bottom

Diagonal sum

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16

$(0,3) \rightarrow 3$

$(1,2) \rightarrow 3$

$(2,1) \rightarrow 3$

$(3,0) \rightarrow 3$

PD  $\rightarrow$   $i = j$

SD  $\rightarrow$   $i+j = n-1$

PD  $\rightarrow$  Primary diagonal

SD  $\rightarrow$  Secondary diagonal

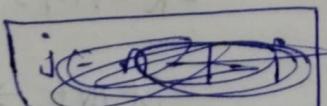
$$PD : 1 + 6 + 11 + 16 = 34$$

$$SD : 4 + 7 + 10 + 13 = 34$$

Secondary Method

$$i+j = n-1$$

$j$



$$j = n - i - 1$$