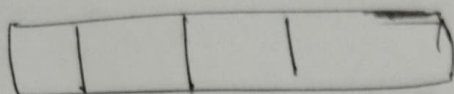


2D Array in Memory

char



100 104 108 112 } → Addresses

→ row Major

0	1	2
3	4	5
6	7	8

i = row

j = col

3x3

i j

r_1

0	1	2
---	---	---

101 104 108

r_2

3	4	5
---	---	---

112 116 120

r_3

6	7	8
---	---	---

124 128 132

c_1

0
1
2

101 104

c_2

3
4
5

c_3

6
7
8

Spiral Matrix

Approach

$\frac{n}{2}$ iterations

Start row

end row

Start col

end col

1st	2nd
→ 0	1
→ $3(n-1)$	2
→ 0	1
→ $3(m-1)$	2

SR = 0

EC = m - 1 = 3

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

ER = n - 1 = 3

Start → ++

end → --

loop

while ()

?

1) top

2) Right

3) bottom

4) left

3

left

SR

SC \rightarrow EC

} TOP

ER-1 \rightarrow SR+1

SR+1 \rightarrow ER } Right

EC-1 \rightarrow SC } bottom

Diagonal Sum

PD $\rightarrow i = j$

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

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

$\rightarrow (0,3) \rightarrow 3$

$\rightarrow (1,2) \rightarrow 3$

$\rightarrow (2,1) \rightarrow 3$

$\rightarrow (3,0) \rightarrow 3$

PD \rightarrow Primary diagonal

SD \rightarrow Secondary diagonal

PD $\div 1+6+11+16 = 34$

SD $\div 4+7+10+13 = 34$

Secondary Method

$$i+j = n-1$$

\downarrow

~~$j = n-i-1$~~

$j = n-i-1$