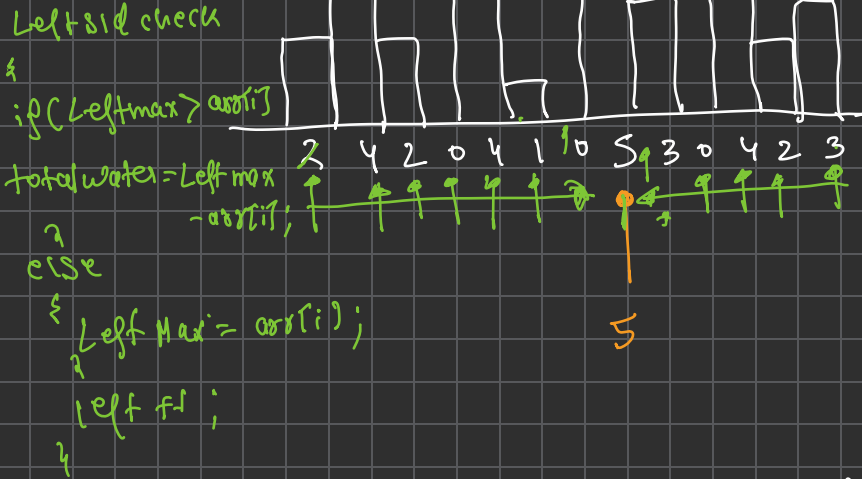
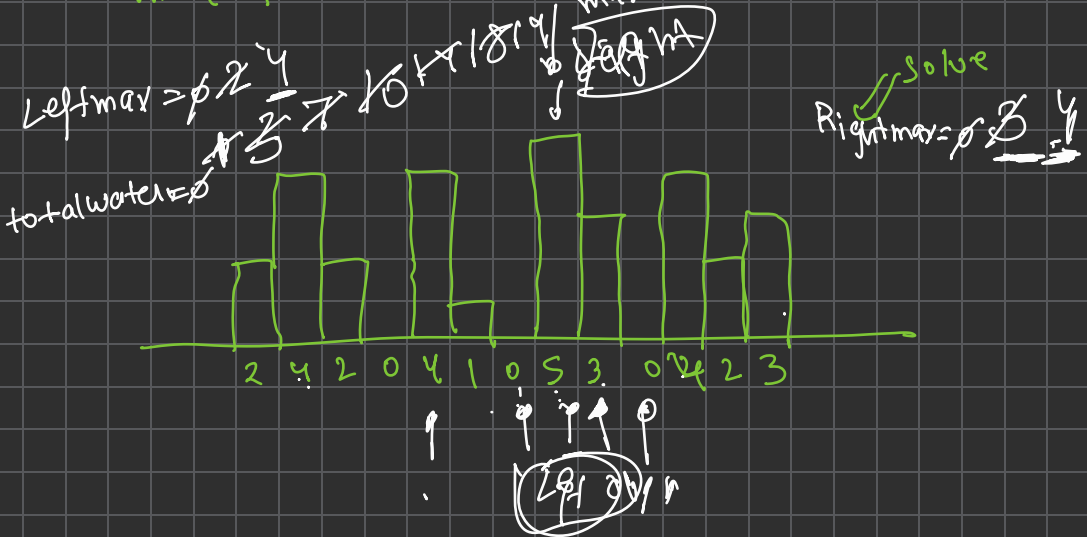


$O(n)$
 2 part
 $O(n)$
 total water = 2 6 4 3 4 8 1 9
 single part
 Left max = 2 4
 Right max = 0
 trapping

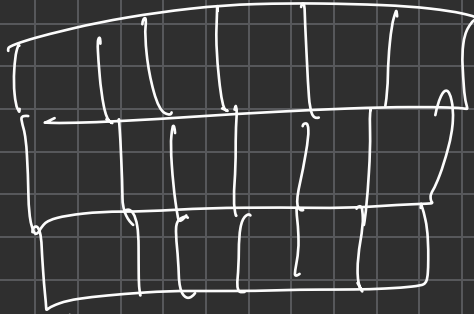
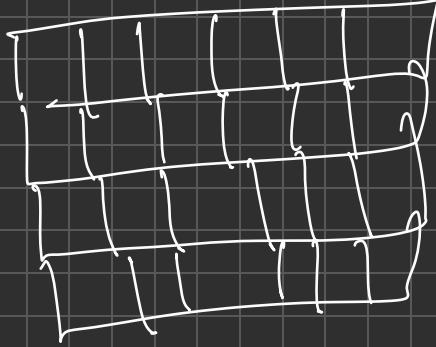


$\min(\text{Leftmax}, \text{Rightmax}) - \text{arr[i]}$
 maximum

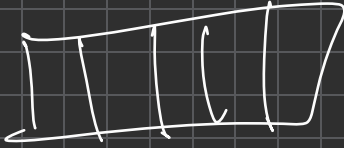
$\min(\text{Leftmax}, \text{Rightmax}) - \text{arr[i]}$



2d array → 2 dimensional array



2d array



4

	0	1	2	3
0	1	2	3	4
1	5	6	7	8
2	9	10	11	12

row →

3 rows
4 columns

arr[i][j]

(7)

int arr[3][4] = { {1, 2, 3, 4}, {5, 6, 7, 8}, {9, 10, 11, 12} };

point to value karo karo karta hu;

arr[0][0]
arr[0][1]
arr[0][2]

```

for (i = 0; i < 3; i++)
    for (j = 0; j < 4; j++)
        cout << arr[i][j];
    }
  
```

1000 \Rightarrow address

array \Rightarrow

	0	1	2
0	1	2	3
1	4	5	6
2	7	8	9
3	10	11	12

\rightarrow row

\rightarrow column

$4 \times 3 = 12$

row major index? Memory Location

0	1	2	3	4	5	6	7	8	9	10	11
1	2	3	4	5	6	7	8	9	10	11	12

\Rightarrow Base address + index \times Size of Data

index \Rightarrow $\{ \text{rowIndex} \times \text{ColmSize} + \text{ColumnIndex} \}$, $2 \times 3 + 1 = 7^{\text{th}}$

address = Base address + () \times Size of Data

$= 1000 + 40$

$= 1040$

	0	1	2
0	1	2	3
1	4	5	6
2	7	8	9
3	10	11	12

rowColumn

column:

0	1	2	3	4	5	6	7	8	9
1	4	7	10	2	5	8	11	3	6

index $\rightarrow [\text{ColumnIndex} \times \text{rowSize} + \text{rowIndex}]$

4×4 \rightarrow 2×8 \rightarrow Transpose
 Column

row

	0	1	2	3
0	1	2	3	4
1	5	6	7	8
2	9	10	11	12
3	13	14	15	16

	0	1	2	3
0	1	5	9	13
1	2	6	10	14
2	3	7	11	15
3	4	8	12	16