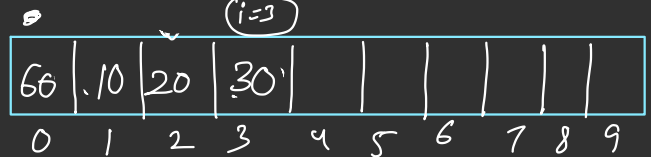
L12 (C++)
Multi-Dimensional Arrays

Join Discord - https://bit.ly/ly-discord

Warmup questions

1. Insert/Delete elements:
   a) In the end of Array
   b) In the beginning of the Array
   c) At a given index



j = i-1

int

j = 2

arr[i] = 40

i++;

10

(how many ele can it hold) capacity = 10

(no. of ele) size = 0

arr[j+1] = arr[j]

30

arr[j+1] = arr[j]

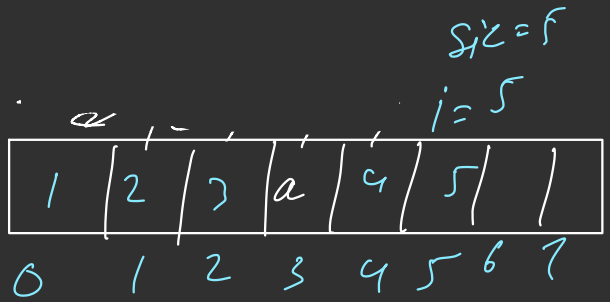
20

arr[i] = 10;

i++;

arr[i] = 20;

i++;



8

HW → insert at given index.
delete at given index

Multi-Dimensional Arrays

When we studied 1D Arrays

What if not just 1 subject?

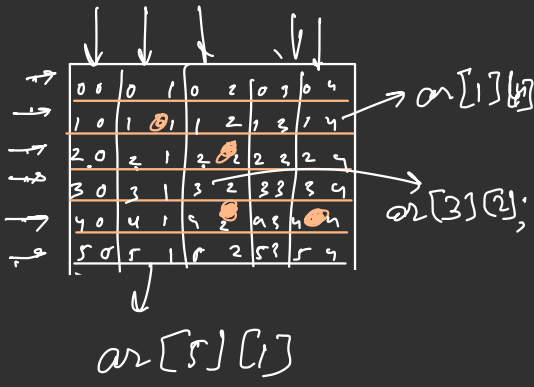
S.No	Math	Scien	SST
1	10	28	40
2			
3			

Declaration

rows cols

```
int student_marks[6][5];
```

6 students
5 subjects




```
cout << arr[i];
cout << arr[i][j];
```

Declaring and initialising at the same time

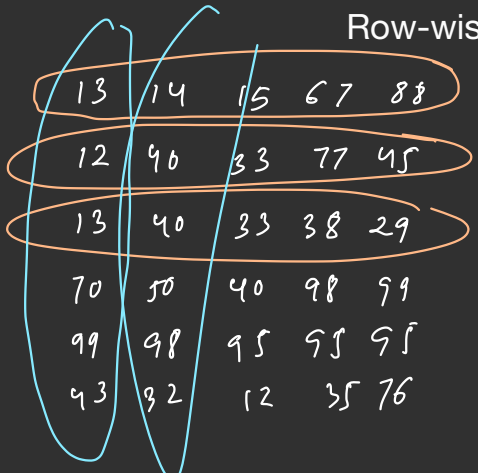
```
int student_masks[6][5] = { {1, 2, 3, 4, 5},
                            {6, 7, 8, 9, 10},
                            {11, 12, 13, 14, 15},
                          }
```

Accessing the elements

```
cin >> ar[i][j];
```

Let’s get started with problems

Row-wise traversal of matrix



13 14 15 67 88 12 90 33...

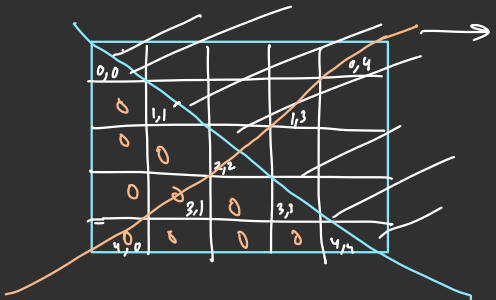
Column-wise traversal of matrix

13 12 13 70 99 43 14 40 40

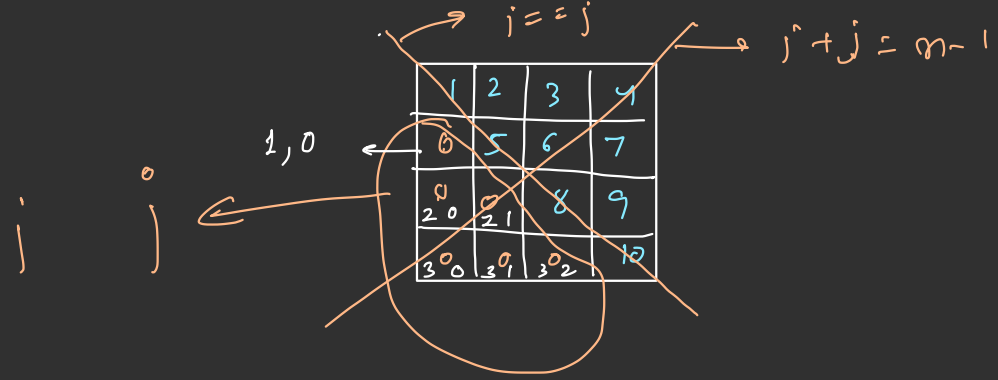
Print sum of elements for:

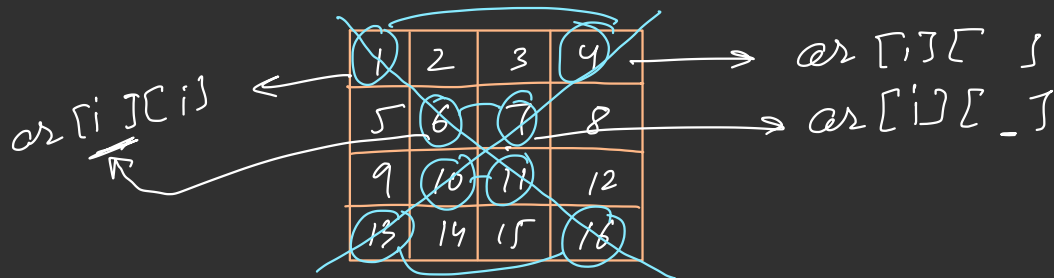
a) Each Row

b) Each Column



Check if given matrix is an upper triangular matrix?





Given a square matrix, interchange its diagonals

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

Thank You!

(Reminder: Keep Practicing)