

2D Array - 3

2D Vectors

Lecture-16

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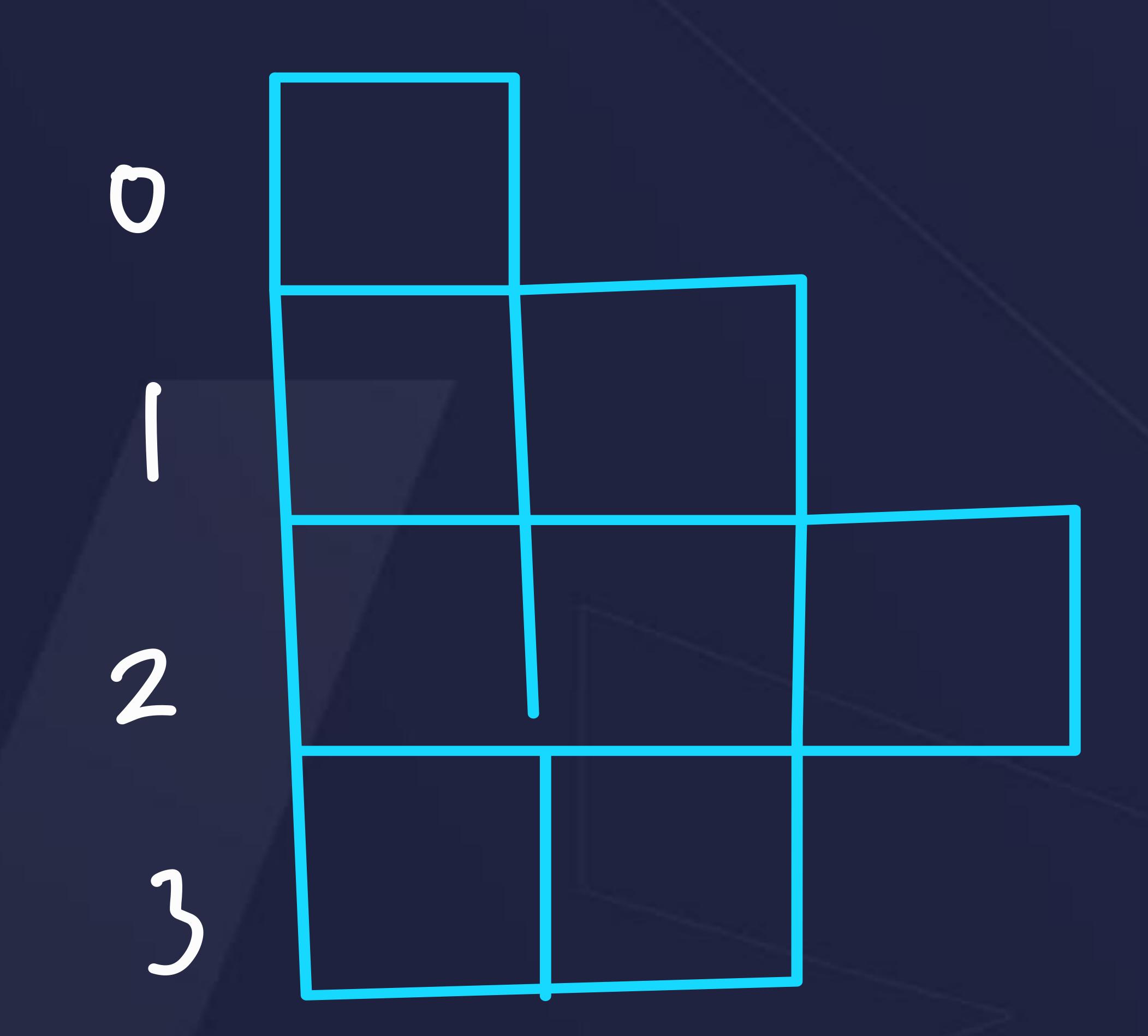
2D Vectors

- vector<vector<int> > v;
- vector<vector<int> > v(m); → initial size
- ** vector<vector<int> > v(m, vector<int> (n));
 - vector<vector<int> > v(m, vector<int> (n, k));

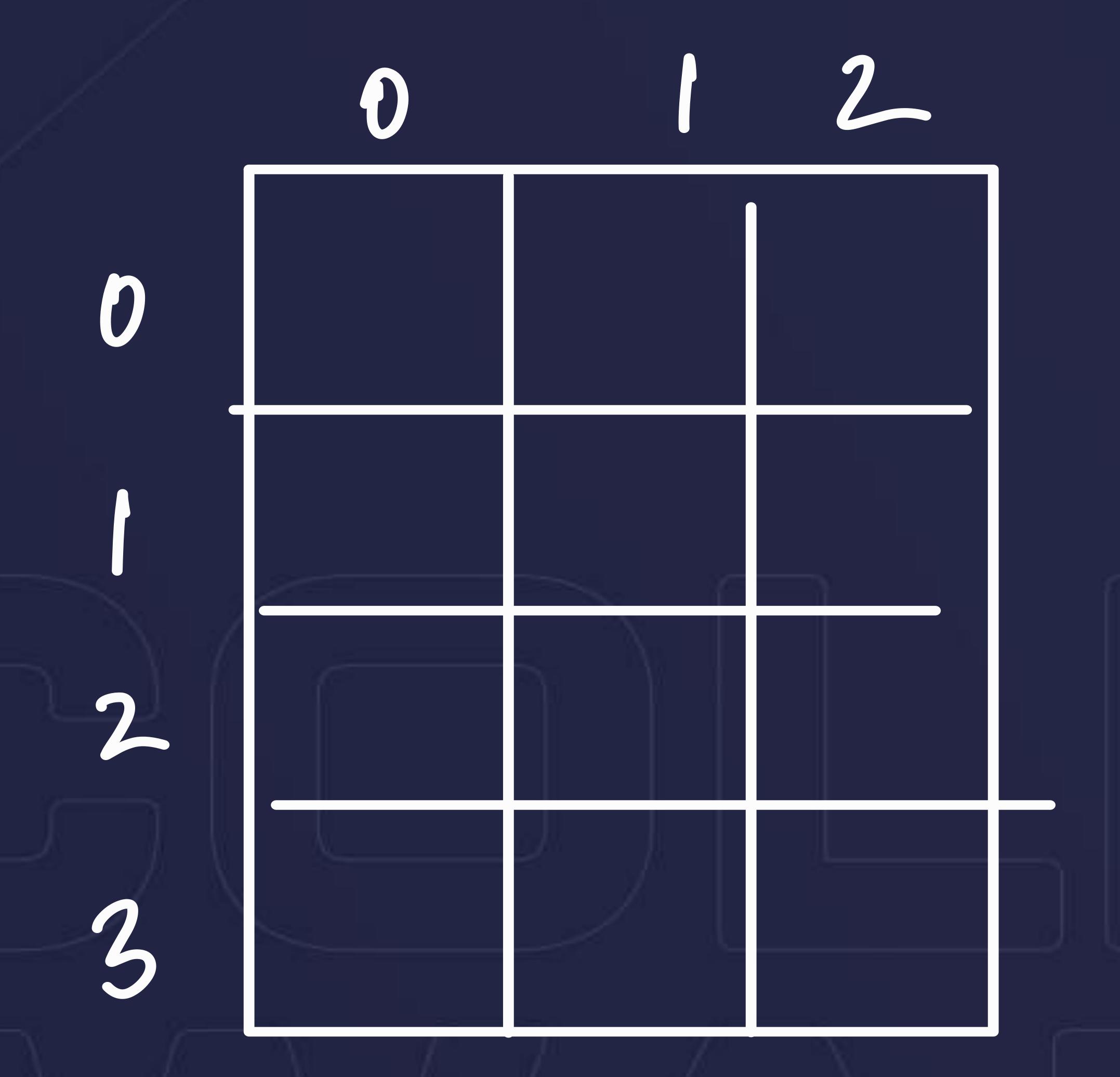


Advantages of vectors over arrays

- 1) Increase your rows
- 2) Vanable Columns



2D vectors are vector of nectors





Advantages of vectors over arrays

$$VI = \{ 1, 2, 33 \}$$

$$V2 = \{ 4, 53 \}$$

$$V3 = \{ 6, 7, 8, 9, 103 \}$$

$$V3 = \{ 6, 7, 8, 9, 103 \}$$

$$V3 = \{ 6, 7, 8, 9, 103 \}$$

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Advantages of vectors over arrays

Passing of 2D Arrays into functions -sproblem we have to mention rows & columns both



2D Vector as 2D Arrays





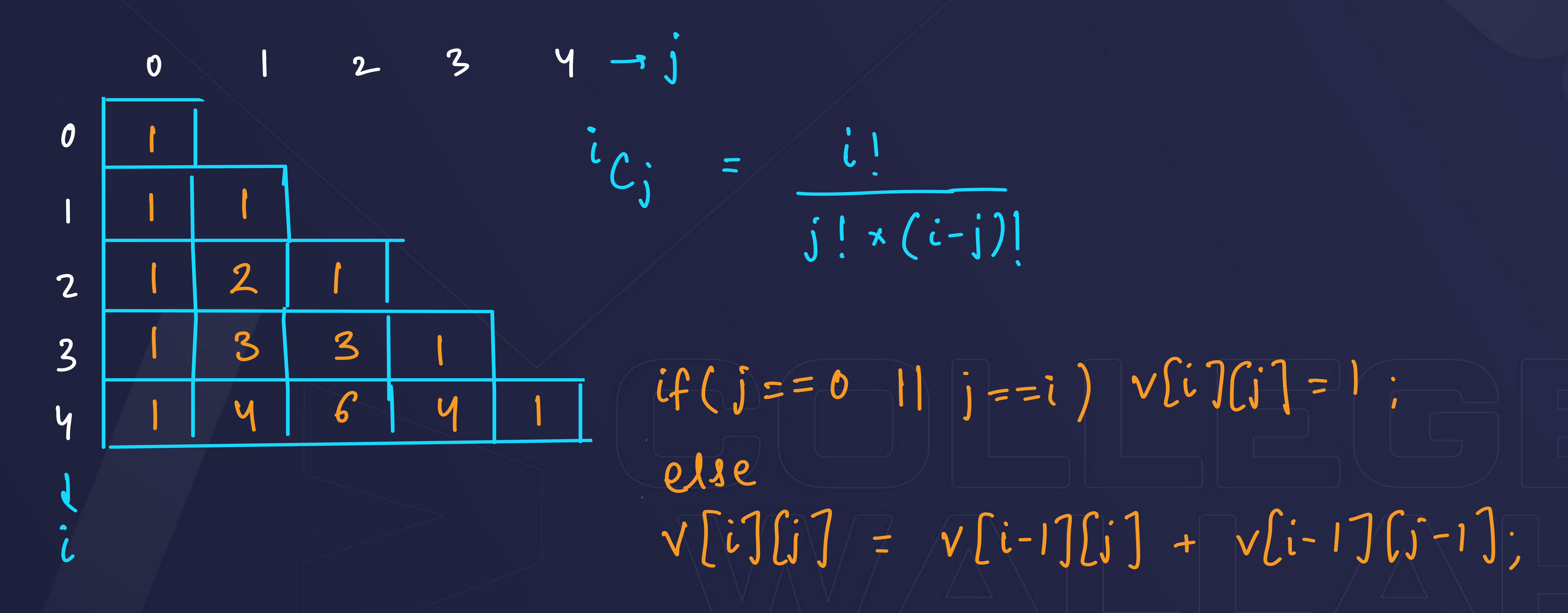
Basic STL functions in vectors

- push_back()
- pop_back()
- begin()
- end()
- rbegin()
- e rend()

```
v = { \(\lambda\) 
                           a = 46,7,8,9,103
v. push-back(a);
         V -> 541,2,33, 64,53, 86,7,8,9,103)
      v. Pop-back();
    V-> {\lambda_1,2,33}, \lambda_4,5\lambda_5\rangle
```



Ques : Given an integer 'numRows', generate Pascal's triangle. [Leetcode 118]





Leetcode 861

Ques: Score after flipping matrix



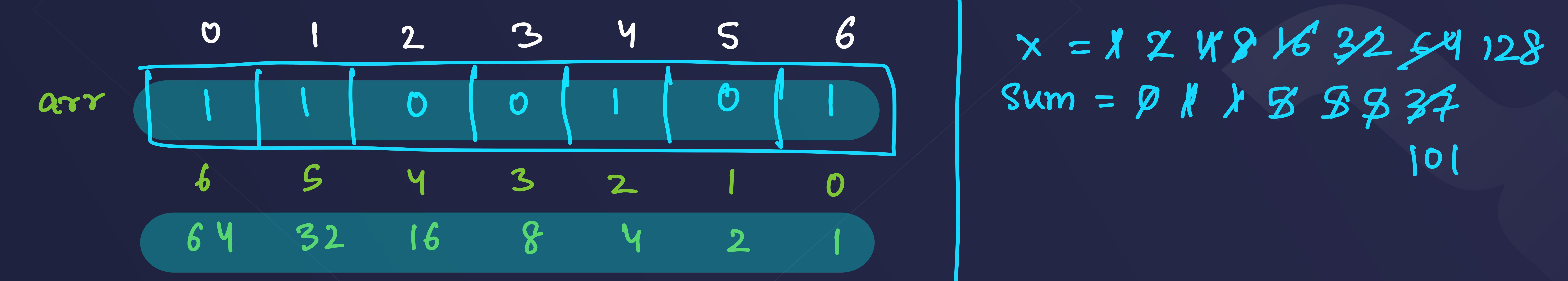
SUM = 0

18t 8tep: 0th column - all ones -> vous flip
initially 0

2 step: Flip the columns where noz > noo

SKILLS

Binary to Decimal



int sum = 0;
int
$$x = 1$$
;
for (int $i = 6 : 170 ; i--)$;
Sum $+= arr[i] + x$;
 $x = 2$:

$$1 \times 32 + 0 \times 16 + 1 \times 18 + 1 \times 14 + 1 \times 2 + 1 \times 1$$

$$= 32 + 0 + 8 + 4 + 2 + 1$$



Ques: Write an efficient algorithm that searches for a value target in an m x n integer matrix which has the following properties:

- Integers in each row are sorted in ascending from left to right.
- Integers in each column are sorted in ascending from top to bottom.

```
1 4 7 11 15
 2 5 8 12 19

    2
    3
    6
    9
    16
    22

    3
    10
    13
    14
    17
    24

18 21 23 26 30
```

		4		111	
	2	5	8	12	19
	3	6	9		
3	10	13	14		24
	18	21	23		30

go down /nights

1			111	15
2		8	12	19
3	6	9	16	22
10	13	14	17	24
18	21	23	26	30



1	4	7		
2	5	8		19
3	6			22
10			17	24
18	21	23	26	30

toraet	27

1	4	7	11	
2	15)	8	12	
3	6	9	16	
10	13	14	17	
18	21	23		

bahar - False



Thankyou!

SOLLEGIE WALLAH