

L13 (C++)

Arrays Problem Solving Returns

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

Recap

Memory allocation in 2D arrays

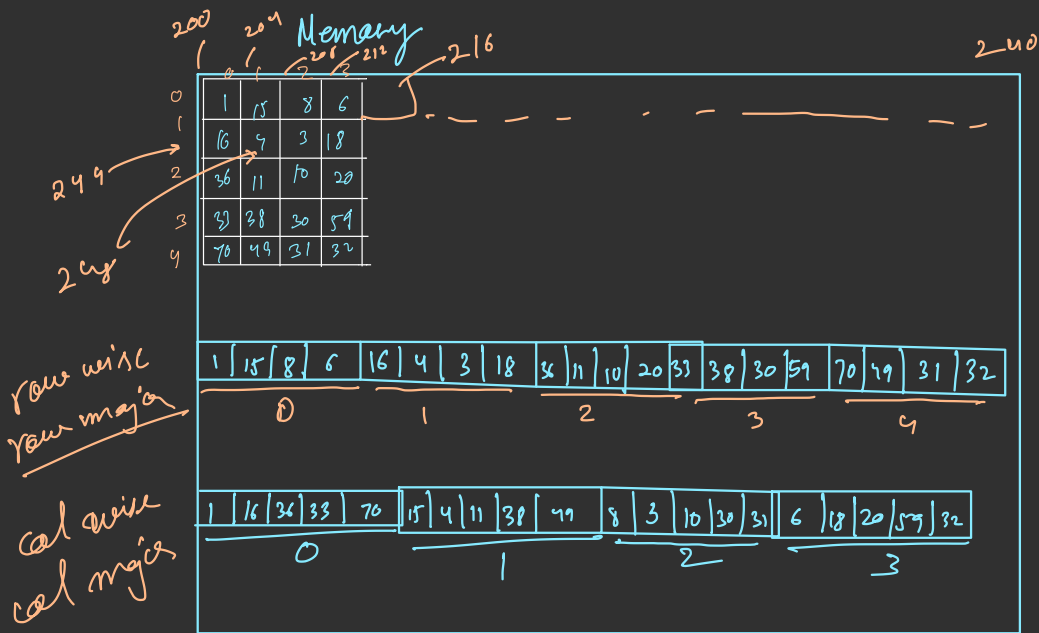
	0	1	2	3
0	1	15	8	6
1	16	9	3	18
2	36	11	10	20
3	33	38	30	54
4	70	44	31	32

✓ C
5x4

Contiguous memory

or [2][3]

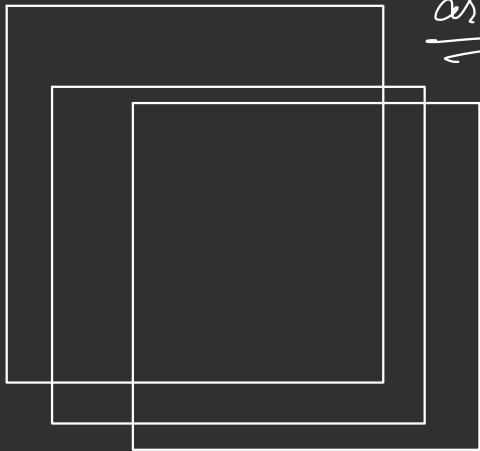
(20)



int ar [10] [30] [20]

ar [8] [120] [5]

ar [1] [1] [0]



int ar [10] [20] [30]

int ar [10] [20];

6

	0	1	2	3	4
0					
1					
2					
3					
4					
5					
6					

$= \text{new int}^*[10];$

$\text{int}^* \text{ptr} = \underline{\text{new int}[10];}$

$= \text{new int};$

$\text{int}^* \text{ptr} = \underline{\underline{\text{new int}(50);}}$

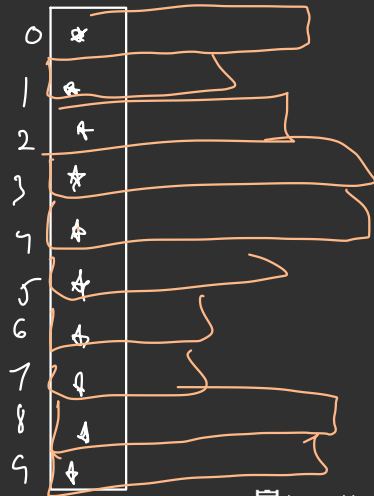
$\text{int}^{**} \text{ptr} = \boxed{\text{new } \underline{\underline{\text{int}^*}};}$

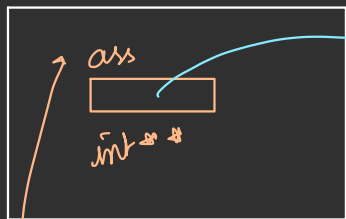
`int* ptr = new int;`
`int** ptr = new int*;`

`int* ptr = new int[10];`
`int** ptr = new int*[10];`

`int ar[100];`

`cout << ar;`





Stack

addresses of

int** arr = new int*[5];

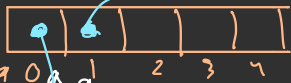
arr[0]

arr[1]

arr[2]

arr[i] = new int[7];

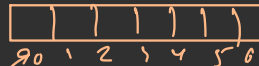
Heap



int*



int



int

Bring on the problems!

Given 2 matrices, multiply them.

$$4 \times 4 + 1 \times 6 + 2 \times 6 + 6 \times 7 = 76$$

4	1	2	6
15	3	9	7
20	11	8	10

5	4	3	2
8	6	1	9
2	6	1	5
3	7	8	4

$$a \times b$$

$$b \times c$$

$$a \times c$$

50	76	63	51
138	181	113	130
234	269	.	.

$k = 0-3$

$A[i][k];$

$B[k][j];$

$$\frac{a \times b}{3 \quad 9}$$

$$\frac{b \times c}{4 \quad 4}$$

$$\underline{a \times c}$$

$$4 \times 5 + 1 \times 8 + 2 \times 2 + 6 \times 3$$

$$\underline{50}$$