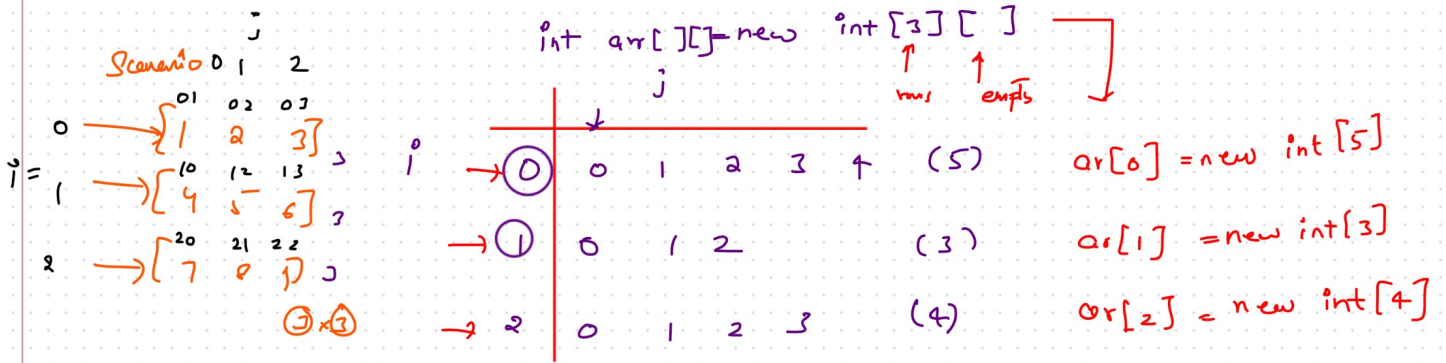


Jagged Array

Array with diff columns in each row



Memory Mapping

```
public static void main(String[] args) {
    int arr[][] = new int[3][];
    arr[0] = new int[5];
    arr[1] = new int[3];
    arr[2] = new int[4];
}
```

arr[0][1] = 0

Note:

Before

After

arr[0] → null

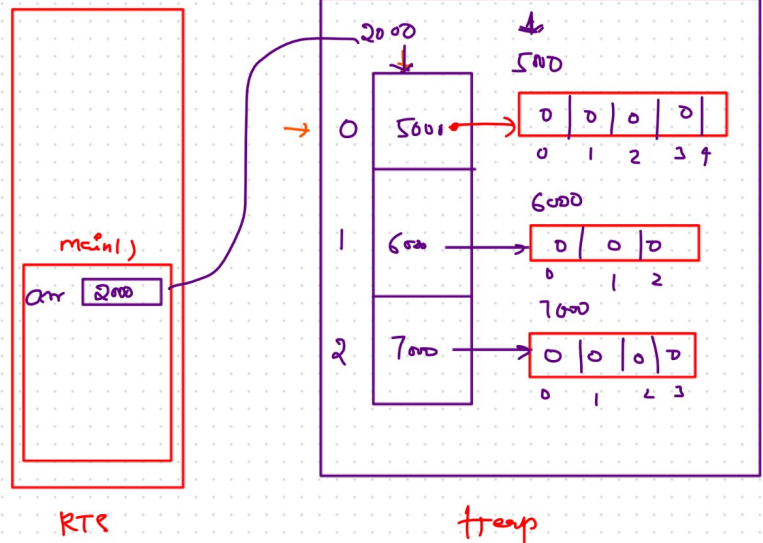
arr[0] → 5000

arr[1] → null

arr[1] → 6000

arr[2] → null

arr[2] → 7000



3D Array

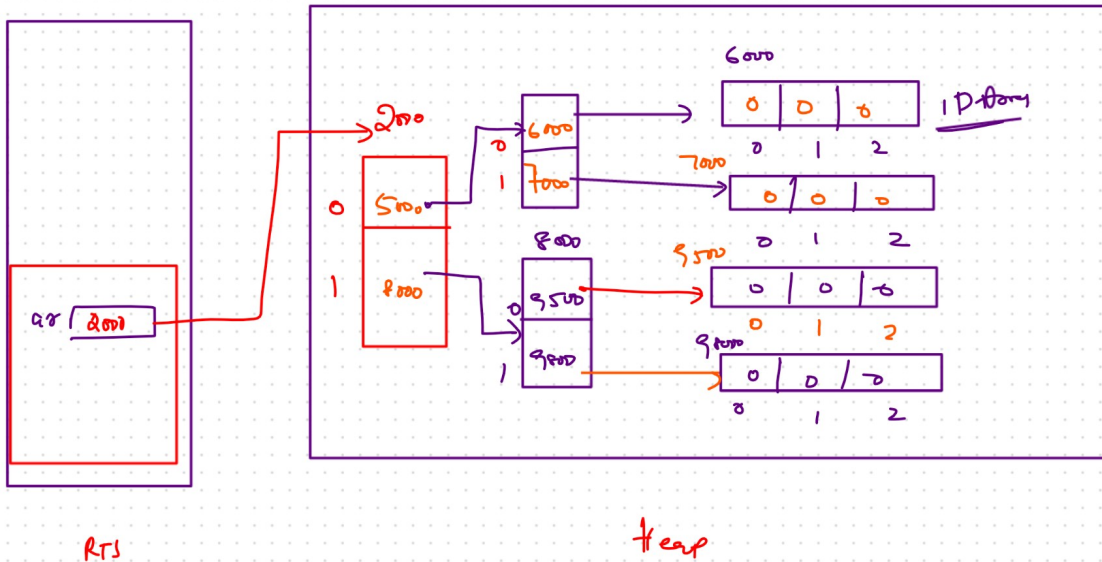
Scenario

	Schools	class rooms	Students
			↓
		0	0 1 2
	0	1	0 1 2
		0	0 1 2
	1	1	0 1 2

school [0] [0] [2]

school [1] [0] [1]

`int ar[][][] = new int [2] [2] [3]`



3D - Jagged Array

`int ar[][][] = new int [2] [] []`

→ `arr[0] = new [2] []`

→ `arr[1] = new [3] []`

`arr[0][0] = new int [3]`

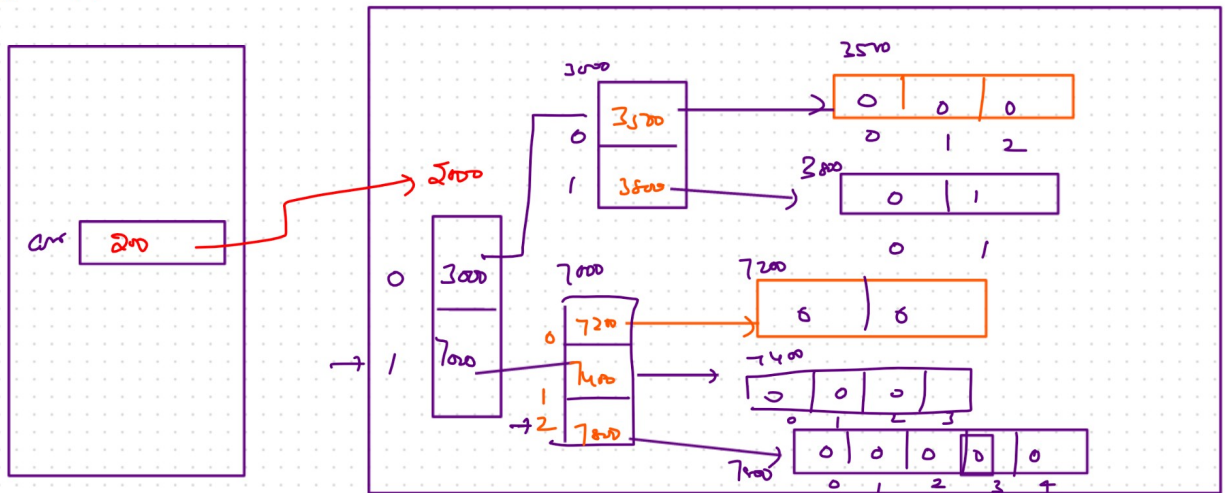
`arr[0][1] = new int [2]`

`arr[1][0] = new int [2];`

`arr[1][1] = new int [4];`

`arr[1][2] = new int [5];`

Memory mapping



$$arr[1][2][3] = 0$$

Transpose matrix 90°

3	Size	→	00 1	01 2	02 3	→	00 7	01 4	02 1	2
3			10 4	11 5	12 6	→	10 8	11 5	12 2	1
3			20 7	21 8	22 9	→	20 9	21 6	22 3	0

⇒ new Matrix[j] [(row-1)-i]

* H-W

<90° new Matrix[(row-1)-i][i]

→	00 ①	01 2	02 3
→	10 4	11 5	12 6
	20 7	21 8	22 9

00	01	02
7	4	1
10	11	12
8	5	2
20	21	22
9	6	3

new Matrix[j] []

③

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

0	0	= 1
1	0	= 4
1	1	= 5
2	1	= 6

1	—	2
1	—	1

$$20 = 7$$

$$21 = 8$$

$$22 = 9$$

$$00 = 7$$

$$16 = 8$$

$$20 = 9$$



$$j=0$$

$$(row - 1) - 1$$

$$(3 - 1) - 0 = 2$$

$$i=1$$

$$(row - 1) - i$$

$$(3 - 1 - 1) = 1$$

$$i=2$$

$$(row - 1) - i$$

$$(3 - 1 - 2) = 0$$

i	j
0	2
0	2
0	2
1	1
1	1
1	1
2	0
2	0
2	0

Declaration & Initialization of Arrays

$$\text{int arr}[] = \{ 1, 2, 3, 4, 5, 6 \}$$

$$\text{int arr}^{3}_{2}[\][\] = \{ \underbrace{\{ 1, 1, 1 \}}_{0}, \underbrace{\{ 2, 1 \}}_{1}, \underbrace{\{ 3, 3 \}}_{2} \}$$

$$\text{int arr}^{1}_{1}[\]^{1}_{1}[\] = \{ \underbrace{\{ 5, 3, 1 \}}_{0}, \underbrace{\{ 2, 4 \}}_{1}, \underbrace{\{ 1, 1, 1 \}}_{2}, \underbrace{\{ 2, 2, 2, \{ 3, 3 \} \}}_{3} \}$$

Alternative ways of declaring array

H.W

int ar[]

int[] ar;

int []ar;

int ar[][]

int [][]ar;

int [][] ar;

int [] ar[];

int [] ar[];

→ int [] [] ar;

m.c