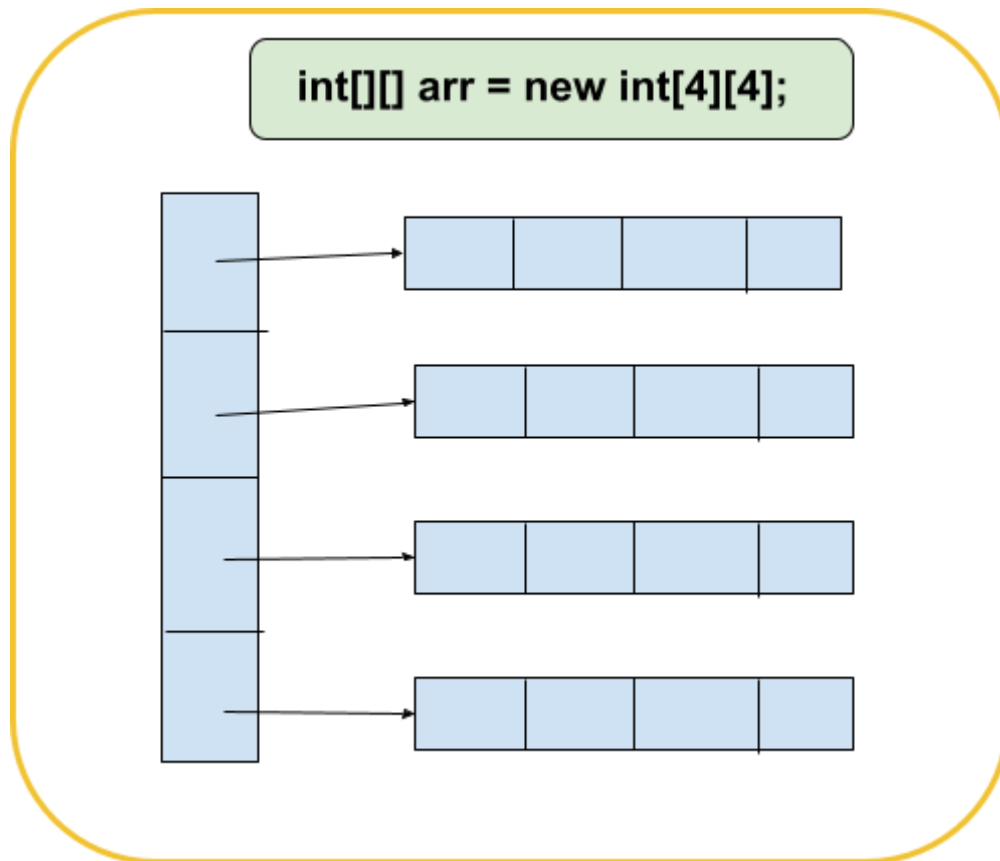


# 2D Array

---

2D array == array of arrays



We can imagine 2D array as **Matrix** or **table**

how to define

---

```
data_type[][] arr = new data_type[no of row][no of column];
```

## How to initialize 2D array

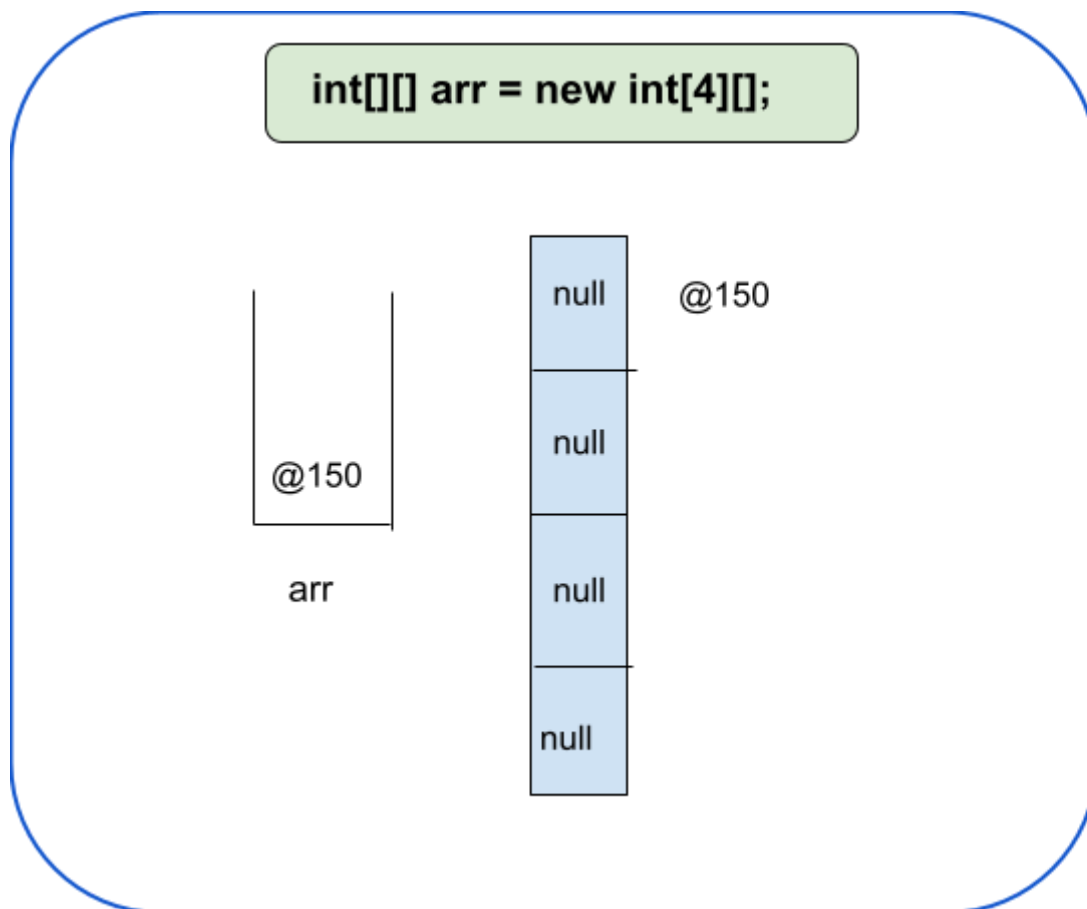
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```
int[][] arr = new arr[3][4];  
arr[i][j] = value;  
  
// i = row number  
// j = column number
```

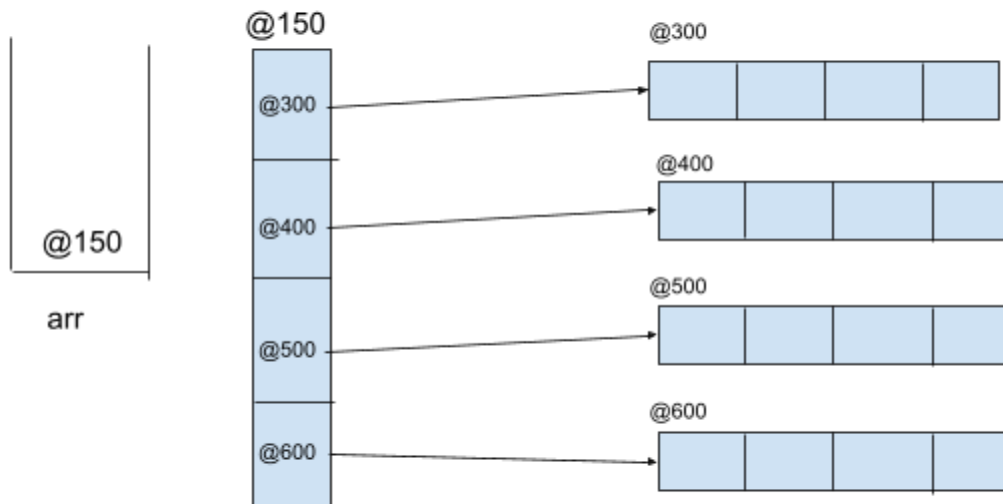
By default all the values in the 2D array are initialized to ZERO.

## How 2D arrays are stored

---



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



Hence 2D array stores references of 1D arrays

## Jagged Array

Jagged arrays are 2D arrays with a variable number of columns in various rows.

For example:

```
int[][] T1 = {{11,12,5,2},{10,6},{10,8,12},{12}};  
int[][] T2 = {{1,2,3}, {1}, {3}, {1,2}};  
int[][] T3 = {{1},{},{1,2,1},{0}};
```

```

package fundamentals.Arrays;
/**
 * JAGGED ARRAYS
 */
public class spe2DArray {
    public static void main(String[] args) {
        int[][] arr = new int[5][];

        for (int i = 0; i < arr.length; i++) {

            System.out.println(arr[i]);

        }

        //int[][] arr = new int[][5]; wrong!

        for (int i = 0; i < arr.length; i++) {
            arr[i] = new int[i+1];
        }

        for (int i = 0; i < arr.length; i++) {
            for (int j = 0; j < arr[i].length; j++) {
                System.out.print(arr[i][j]);
            }
            System.out.println();
        }

        /**
         *
         * output:

        null
        null
        null
        null
        null
        0
        00
        000
        0000
        00000
    
```

$\ast /$

}

}