Jagged Array in Java
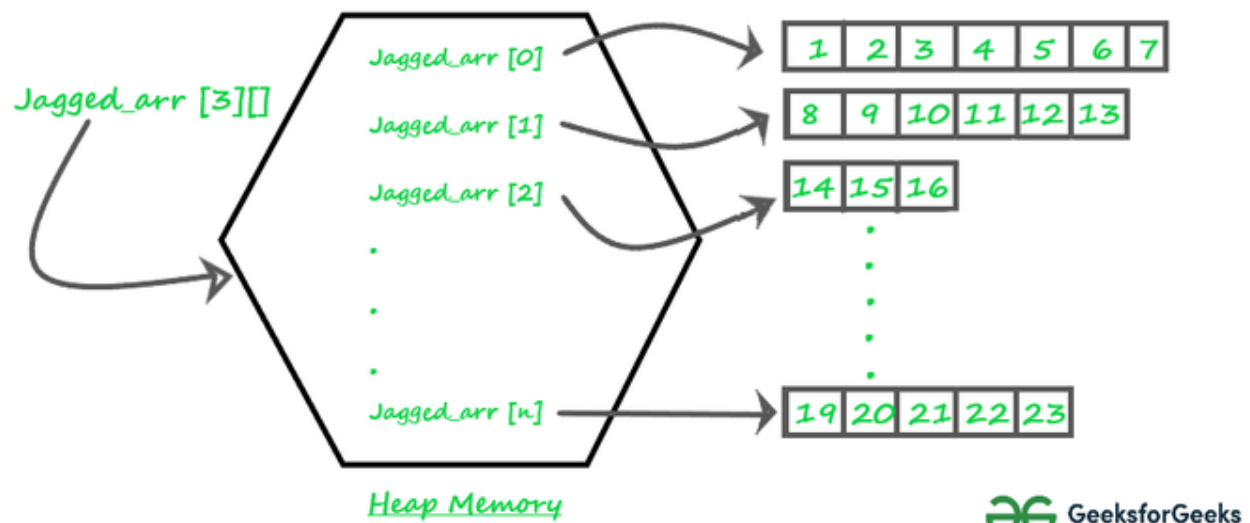

A jagged array is an array of arrays such that member arrays can be of different sizes, i.e., we can create a 2-D array but with a variable number of columns in each row.

Pictorial representation of Jagged array in Memory:

Declaration and Initialization of Jagged array :

data_type array_name[][] = new data_type[n][];
array_name[] = new data_type[n1]
array_name[] = new data_type[n2]
array_name[] = new data_type[n3]
.
.
.
array_name[] = new data_type[nk]
where n = Total number of rows and ni = number of columns in i-th row

Alternative, ways to Initialize a Jagged array :

int arr_name[][] = new int[][] { new int[] { 10, 20, 30, 40 },
new int[] { 50, 60, 70, 80, 90, 100 },
new int[] { 110, 120 } };

OR

int[][] arr_name = { new int[] { 10, 20, 30, 40 },
new int[] { 50, 60, 70, 80, 90, 100 },
new int[] { 110, 120 } };

OR

int[][] arr_name = { { 10, 20, 30, 40 },
{ 50, 60, 70, 80, 90, 100 },
{ 110, 120 } };

Following is example where i'th row has i columns, i.e., the first row has 1 element, the second row has two elements and so on.

```java
// Program to demonstrate 2-D jagged array in Java
class GfG {
    public static void main(String[] args) {
        int m = 3;

        // Declaring 2-D array with 3 rows
        int arr[][] = new int[m][];

        // Creating a 2D array such that first row
```

```java
        // has 1 element, second row has two
        // elements and so on.
        for (int i = 0; i < arr.length; i++) {
            arr[i] = new int[i + 1];

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

                System.out.print(arr[i][j] + " ");
            }

            System.out.println();
        }
    }
}
```

Output

```
0
1 1
2 2 2
```