**Multidimensional Arrays in Java**

Array-Basics in Java **Multidimensional Arrays** can be defined in simple words as array of arrays. Data in multidimensional arrays are stored in tabular form (in row major order).

**Syntax:**

**data\_type**[1st dimension][2nd dimension][]..[Nth dimension] **array\_name** = **new data\_type**[size1][size2]….[sizeN];

**where:**

* **data\_type**: Type of data to be stored in the array. For example: int, char, etc.
* **dimension**: The dimension of the array created. For example: 1D, 2D, etc.
* **array\_name**: Name of the array
* **size1, size2, …, sizeN**: Sizes of the dimensions respectively.

**Examples:**

Two dimensional array:

int[][] twoD\_arr = new int[10][20];

Three dimensional array:

int[][][] threeD\_arr = new int[10][20][30];

**Size of multidimensional arrays**: The total number of elements that can be stored in a multidimensional array can be calculated by multiplying the size of all the dimensions.

**For example:** The array **int[][] x = new int[10][20]** can store a total of (10\*20) = 200 elements. Similarly, array **int[][][] x = new int[5][10][20]** can store a total of (5\*10\*20) = 1000 elements.

## Two – dimensional Array (2D-Array)

Two – dimensional array is the simplest form of a multidimensional array. A two – dimensional array can be seen as an array of one – dimensional array for easier understanding.

**Indirect Method of Declaration:**

* **Declaration – Syntax:**

**data\_type[][] array\_name = new data\_type[x][y];**

For example: int[][] arr = new int[10][20];

* **Initialization – Syntax:**

**array\_name[row\_index][column\_index] = value;**

For example: arr[0][0] = 1;