What are 2D arrays?
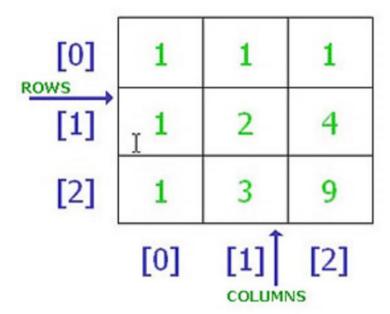
2D arrays are arrays indexed by 2 subscripts, a row and a column. Here is an image from javarevisited.blogspot.com:

As we can observe from the image above the first row and column are indexed as 0's, just like 1D arrays and Strings. The way we would define an array element is very simple. First we state the name of the variable of the array, then proceed to state the row number and column number in brackets. For example: newArray[0][0] = 3.

Creating a 2d array looks something like this:

```
int[][] rating = new int[3][4];
```

The first number represents the number of rows, and the second number represents the number of columns in the matrix.

Obtaining the size of the array

We can obtain the # of rows in an array by stating: array.length.
We can obtain the # of columns in row n by stating: array[n].length.

Filling out arrays

The way we would fill out an array is by using for loops. Since we have 2 dimensions in the array: we would one for loop inside another: one for the rows, one for the column; Here is an example:

```
for(int i = 0; i < nums.length; i++)
{
   for(int j = 0; j < nums[i].length; j++)
   {
      nums[i][j] = (int)(1000 * Math.random());
   }
}
```

In this example, we will out the array nums with random 3 digit numbers. The i variable represents the row number and the j variable represents the column number.