6.7 Two-Dimensional Arrays

You will write a program that contains the 4 methods below. Initialize a two-dimensional array with at least 5 rows and 5 columns. Randomly populate the elements of that 2D array.

First, in your main() print out the results of the 2D array as a matrix.

Second, write the four method below that return those values back to the main(). Print the results of the 4 methods. See the sample output below.

Write a method

```
public static int maxValue(int[][] a)
```

that returns the maximum value in the two-dimensional array.

Write a method

```
public static int rowSum(int[][] a, int x)
```

that returns the sum of the elements in row x of the two-dimensional array

Write a method

```
public static int columnSum(int[][] a, int x)
```

that returns the sum of the elements in column x of a two-dimensional array. Assume that the matrix is not jagged.

Write a method

```
public static int[] allRowSums(int[][] a)
```

that calculates the row sum for *every* row and returns *each* of the values in an array.
**Index i of the return array contains the sum of elements in row i.

Sample output:

2D Array:
3 4 41 45 1
9 56 2 31 2
32 9 12 4 29
3 32 1 11 23
4 98 38 2 12

The largest value in the 2D array is: **98**
Let's calculate the sum of a row, which row do you want? **1**
The sum of row **1** is: **94**
Let's calculate the sum of a column, which column do you want? **5**
The sum of column **5** is: **67**
The sum of all rows is: **94 100 86 70 154**