Ragged Array

Text pg324 #1,2,3

1. Write a piece of code that will return the maximum value in of the elements in a two dimensional array of int values. Do not assume that the array is rectangular.

```
int [][] array = {{2,4,6},{8,10},{12,14,16,18,20},{0}};
        int max = 0;
        for (int x = 0; x < array.length; x++) {
            for(int y = 0; y < array[x].length; y++) {
                if (max < array[x][y])
                    max = array[x][y];
            }
        }
        System.out.println("The max value is " + max);
```

2. Write a pieced of code that could be used to print a two-dimensional ragged array of int values. Each row of elements should be printed on its own line with one blank between each element.

```
int [] [] array = new int [3][]; //Ragged array
        array[0] = new int[4];
        array[1] = new int [2];
        array[2] = new int [10];
        for (int x = 0; x < array.length; x++) {
            for(int y = 0; y < array[x].length; y++) {
                System.out.print(array[x][y] + " ");
            }
            System.out.println();
        }
```

3. Write a piece of code that has one int [] [] [] parameter. The code should produce the number of elements in the array. Do not make assumptions about regularity of the array.

```
int array [][][] = new int [3][4][5];
        int count = 0;
        for (int x = 0; x < array.length; x++) {
            for (int y = 0; y < array[x].length; y++)
{
                for (int z = 0; z <
array[x][y].length; z++) {
                    count++;
                }
            }
        }
        System.out.println(count);
```

4. Write a program that will prompt the user for an integer x. The program then will then create a ragged array to store a pyramid of stars with a length of x and width of x. Print your array.
   For example:
   If you enter an integer 5, you need to create a ragged array of strings to contain the following information.
   *
   **
   ***
   ****
   *****

```
Scanner input = new Scanner (System.in);
System.out.println("Enter an integer:");
int x = input.nextInt();
String [] [] stars = new String [x+1][];

//Declares the COLUMNS for each ROW.
for (int row = 0; row < stars.length; row++) {
      stars[row] = new String [row];
}

for (int row = 0; row < stars.length; row++) {
      for (int column = 0; column < stars[row].length;
column++) {
            stars[row][column] = "* ";
            System.out.print(stars[row][column]);
      }
      System.out.println();
}
```

Declare and initialize a multi-dimensional array with the following values of type integer:
{5, 8},
{3, -4, 7, 1, 5},
{6, 4, 12}

5. Write a program that will loop through the array and print the smallest integer.

```
int [] [] array = {{5, 8},
                   {3, -4,  7, 1, 5},
                   {6, 4, 12}};

int smallest = array[0][0];
for (int x = 0; x < array.length; x++) {
      for (int y = 0; y < array[x].length; y++)
{
```

```
                        if (smallest > array[x][y])
                              smallest = array[x][y];
                  }
            }
            System.out.println("The smallest value is " +
      smallest);
```

6. Write a program that will loop through the array and print the largest integer.

```
      int [] [] array = {{5, 8},
                         {3, -4,  7, 1, 5},
                         {6, 4, 12}};

            int largest = array[0][0];
            for (int x = 0; x < array.length; x++) {
                  for (int y = 0; y < array[x].length; y++)
      {
                        if (largest < array[x][y])
                              largest = array[x][y];
                  }
            }
            System.out.println("The largest value is " +
      largest);
```

7. Write a program that will loop through the multi-dimensional array and calculate the sum of the integers in the entire array.

```
            int [] [] array = {{5, 8},
                               {3, -4,  7, 1, 5},
                              {6, 4, 12}};

            int sum = 0;
            for (int x = 0; x < array.length; x++) {
                  for (int y = 0; y < array[x].length; y++)
      {
                        sum = sum + array[x][y];
                  }
            }
            System.out.println("The sum of the array is " +
      sum);
```

8. Write a program that will loop through the array and calculate the sum of the integers for each row.

```
      int [] [] array = {{5, 8},
                         {3, -4,  7, 1, 5},
                        {6, 4, 12}};

            int sum;
            for (int x = 0; x < array.length; x++) {
                  sum = 0;
                  for (int y = 0; y < array[x].length; y++)
      {
```

```
                        sum = sum + array[x][y];
                    }
                    System.out.println("The sum of ROW " +
        (x+1) + " is " + sum);
                    }
```

9. Write a program that will loop through the array and calculate the sum of the integers for each column.

10. Write a program that will print the entire array. Each row will be printed on its own line separated by one blank between each element.

```
        int [] [] array = {{5, 8},
                           {3, -4,  7, 1, 5},
                           {6, 4, 12}};

        for (int x = 0; x < array.length; x++) {
              for (int y = 0; y < array[x].length; y++) {
                    System.out.print(array[x][y] + " ");
              }
              System.out.println();
```