

# **COP 2551 – Introduction to OOP**

## **Program #5**

**Due: Friday, 30 July 2010 midnight**

**There is no drop-dead date due to end of semester.**

Using NetBeans 6.8, you are to write a Java program using OOP principles to accommodate the following functionality

Using the input file States.txt, you are to build a 4 by X array of integers, average the numbers in each row and display the array and averages. (If you wish, you may use ArrayList).

Each record in the input file has two fields of interest to you: the region number and the population. (You will need a substring to extract those two numbers, as in Program 4)

### **Task 1: Build a Two-Dimensional Array.**

Build a 4by X array such that each row contains a list of integers for populations of states in 'that' region. Specifically, row 1 would have six columns: 480000 720000 500000 100000 1360000 and 15000 (or some such numbers) namely arrayName (0,0), (0,1), (0,2), etc. that is, all the populations from state that were in region 1. Your second row will have all the populations from those states that are in region 2, etc. Since there are only four regions that we are considering, your two-dimensional array will have four rows. The number of columns depends on the number of states in that region. Thus you will have a ragged array.

### **Task 2: Print out the Two-Dimensional Array.**

You may use the routines in your book discussed at length in class. These are very close to exactly what you will need. See comments below on printing out headers to make this look nice.

### **Task 3: Average the populations per row.**

Write a method that expects you to pass it a single row of the array, like the parameter: arrayName[i] and returns the average population of those states in **that** row (or equivalently in that Region. Call the method four times, once for each row in your array. Each time you call this method, pass the average population back to main each time as an integer.

### **Task 4: Print the average population of each region**

When the method described in task 3 returns the integer population, merely print out this integer.

For all tasks: Please do **format** the output and all outputs with a header that clearly describes the detail lines underneath.

**Task 5.** Go through each region (row) to determine the state with the largest population.

Display this nicely with an appropriate header. Use your professional judgment as to the header. Then, skip a line and print the state with the overall largest population. Display its output nicely too (this means commas, spacing, justification, etc.).

That's it!