

## CMPS 12A – Fall 2017

### Programming Assignment 4: Sorting Approval Ratings Due: Friday November 17, 2017

#### Overview

The purpose of this assignment is to get some practice sorting objects in an array. The data you are sorting will consist of the approval ratings of congress members of California over the last five months. The numbers in this data were randomly generated; another words, it is not real data, only meant to be used for the purposes of this assignment.

Disclaimer: You will not be allowed to use the Arrays or ArrayList classes for this assignment.

#### Details

You will be creating a class for congress members, called CongressMembers. Instance variables must be private, and will consist of the congress member's name, and the last five months of approval ratings. Instance methods will be public, and will consist of all necessary "getter" and "setter" methods, as well as a method to return the average of the congress member's approval ratings.

In a separate class called CongressMembersTest (which will contain your main method), you will create an array of CongressMember objects and do a few specific things with this array. Read in data from a file called approval.txt (from course webpage - Examples/Program4), initialize each object in the array with the data from each line of text from the data file. Each line in the file consists of the congress member's first and last name, as well as five floating-point values (the approval ratings for the last 5 months). You'll need to read through the file once to determine how many members of congress are in the file, in order to initialize the array with the correct number of elements. \*\*\*Please make sure the File object in the program you submit has a path of only the file name.

Still in CongressMembersTest, create a method called **sortByFirstName** that sorts the array of CongressMembers by first name. It should both accept and return an array of CongressMembers. You can use bubble sort.

Create another method called **sortByApprovalRating** that sorts the array of CongressMembers by average approval rating. It should also both accept and return an array of CongressMembers.

Finally, your program needs to write to a text file called output.txt the contents of CongressMembers array sorted by first name, and sorted by approval rating. Write to a file using FileWriter and PrintWriter objects. The very first line of the file should be how many congress members there are total. Separate the two sorted

lists with two blank lines, and a print statement stating which list is which. The format of the file you write should be name and five approval months approval rating all on the same line separated by a space.

## **What to turn in**

Submit CongressMembers.java and CongressMembersTest.java files to canvas in a compressed (.zip) folder. Make sure your java files are named correctly. Points will be deducted if not.

## **Grading Rubric**

CongressMembers class with appropriate methods	3
CongressMembersTest class with appropriate methods	3
Output file with sorted data	4

One point will be taken off for the following: improper indentation, lack of comments, unnecessary compiler errors