CSCI 145 -- PA 4

Writing and Using Classes

Feel free to discuss and help each other out but does not imply that you can give away your code or your answers! You cannot work with a lab partner for this assignment. **You must always use the required template (JavaClassTemplate.java from Canvas) and output "Author: Your Name(s)" or "Modified by: Your Name(s)" for each program as applicable**.

Perform as many exercises from chapter 4 of lab book as possible, but the following lab exercises must be completed. You are not required to turn in written answers to various questions, but it is very helpful in understanding important concepts. You might see those questions on quizzes and exams. It is very important to be able read existing programs and follow the execution flow of those programs.

Exercise 1: Tracking Grades -- method getName() returns name and does not print name as stated in the comment

Exercise 2: Representing Names

Exercise 3: **Drawing Rectangles – JavaFX**
Write a JavaFX application **DrawRectanglesFX** like the Einstein or Snowman example in the textbook that draws 5 rectangles. Use a random number generator to generate random values for the x, y, width, and height. Make x between 0 and 400, y between 0 and 200, the width between 100 and 600 – x, and the height between 100 and 400 - y. You can pick any color as you like. Set your window to 600 by 400.

If you cannot run JavaFX on your computer, you can use the classroom computer during the lab or you can perform an alternate exercise below:

Alternate Exercise 3: **GUI Draw Rectangles with Swing Components**
Download DrawRectangleApp.java on Canvas and modify it to draw the 5 rectangles as specified in exercise 3.

Exercise 4: **Simple Roulette**
Download the two files, Roulette.java and Player.java, on Canvas and modify them as specified by the comments in the code (be sure to add your name to each file). It is an application that uses classes and objects to play a simple version of roulette.

Our simpler roulette wheel has 38 positions, numbered from 00, 0 to 36 (think about how to represent 00). We will assume that the even numbers on the roulette wheel are colored black, and the odd numbers are colored red. However, double zero (00) and zero (0) are colored green. There is only one game available for this version. A player starts the game with $100

with a minimum bet of $1 and up to available money (integer value only). We will limit to only one bet per round and a player can quit any time.

There are two classes set up for this program so look at the two files and have a basic understanding of each file. We will perform one basic task for this PA (make a bet), and we will continue with this program in the next few PAs so make sure to finish this exercise. Try the program and confirm it is working correctly.

Question 1: Constructors are special methods included in class definitions. What is a constructor used for? How do constructors differ from other methods in a class?

Question 2: List important components inside a Java class. What is the best way to learn more about a certain existing Java class?

Extra Credit: Implement **Band Booster Class** exercise in the lab manual.

Fill out and turn in the PA submission file for this assignment (save as PDF format).
