Assignment #3 (20 points; due 10/30/2017 @ 11:59 P.M.)

For all Programs:

For each program make sure and include the following comments at the top (do this on all homework assignments from now on – this is required):

// Your Name
// CS 2, Section #
// Assignment #, Problem #
// Summary of the program

Then, within the program, you will add pseudocode as appropriate to describe the steps of the program. This is in order to get in the habit of writing pseudocode and documenting your code. PSEUDOCODE IS REQUIRED FOR ALL PROGRAMS. Submit your source code and pseudocode by the due date to Canvas. Each of your C++ main files should be in this format:

FirstInitialLastName-CS2-Section#-Assignment#-Problem#.cpp

For example, it'll look similar to this:

EAmbrosio-CS2-149-A3-P1.cpp

Also, add any appropriate files for the new classes you are developing. These files should be zipped in one .zip/.rar./gz/.tgz file.

These programs address Chapters 2, 3, and 6.

PersonData and Customer Data

1. Design a class named PersonData with the following member variables:

   - lastName
   - firstName
   - address
   - city
   - state
   - zip
   - phone

   Write the appropriate accessor and mutator functions for these member variables.

Next, design a class named CustomerData, which is derived from the PersonData class. The CustomerData class should have the following member variables:

- customerNumber
- mailingList

The customerNumber variable will be used to hold a unique integer for each customer. The mailingList variable should be a boolean. It will be set to true if the customer wishes to be on a mailing list, or false if the customer does not wish to be on a mailing list. Write appropriate accessor and mutator functions for these member variables.

Finally, demonstrate an object of the CustomerData class in a simple program.

Playing Games

2. The sporting world is full of athletes that play games. There are all types of athletes, including those that play baseball, basketball, football, and soccer. Every athlete has the following characteristics:

   - Constructor (accepts values for name and salary)

   - Name (type string)

   - Salary (type double)

   For name and salary, implement the accessor and mutator functions. In addition, implement the following function:

        double salaryPerGame()

   Keep in mind that baseball players play 162 games (in Major League Baseball), basketball players play 81 games (in the NBA), football players play 16 games (in the NFL), and soccer players play 38 games (at least in the English Premier League).

   Once you've created a base class for the athlete and derived classes for each of the 4 types of athletes, write a driver (test) program which shows salaries for each of the 4 types of athletes.

   EXTRA CREDIT (5 points): Write a function printSalary that is not a class function, but will be a polymorphic function that takes in a base class argument.