**HW2**

1. Write a definition of a class named Point that might be used to store and manipulate the location of a point in the plane. You will need to declare and implement the following member functions:

1. A member function set that sets the private data after an object of this class is created.
2. A member function to move the point by an amount along the vertical and horizontal directions specified by the first and second arguments.
3. A member function to rotate the point by 90 degrees clockwise around the origin.
4. Two const inspector functions to retrieve the current coordinates of the point.

Embed your class in a test program that requests data for several points from the user, creates the points, then exercises the member functions.

2. Define a class named Money that stores a monetary amount. The class should have two private integer variables, one to store the number of dollars and another to store the number of cents. Add accessor and mutator functions to read and set both member variables. Add another function that returns the monetary amount as a double. Write a program that tests all of your functions with at least two different Money objects.

3. Do Programming Project 2, except remove the two private integer variables and use a single variable of type double to store the monetary value in their place. The rest of the functions should have the same headers.

For several functions, this will require code to convert from an integer format to appropriately modify the double. For example, if the monetary amount stored in the double is 4.55 (representing $4.55) and if the function to set the dollar amount is invoked with the value 13, then the double should be changed to 13.55. While this will take some work, the code in your test program from Programming Project 6.8 should still work without requiring any changes.

4. Create a Temperature class that internally stores a temperature in degrees Kelvin. Create functions named setTempKelvin, setTempFahrenheit, and setTempCelsius that take an input temperature in the specified temperature scale, convert the temperature to Kelvin, and store that temperature in the class member variable. Also, create functions that return the stored temperature in degrees Kelvin, Fahrenheit, or Celsius. Write a main function to test your class. Use the equations shown next to convert between the three temperature scales.

Kelvin = Celsius + 273.15

Celsius = (5.0/9) \* (Fahrenheit - 32)

**Extra Credits 5 points**

You operate several hot dog stands distributed throughout town. Define a class named HotDogStand that has a member variable for the hot dog stand’s ID number and a member variable for how many hot dogs the stand sold that day. Create a constructor that allows a user of the class to initialize both values.

Also create a function named JustSold that increments the number of hot dogs the stand has sold by one. This function will be invoked each time the stand sells a hot dog so that you can track the total number of hot dogs sold by the stand. Add another function that returns the number of hot dogs sold.

Finally, add a static variable that tracks the total number of hot dogs sold by all hot dog stands and a static function that returns the value in this variable. Write a main function to test your class with at least three hot dog stands that each sell a variety of hot dogs.