Lab 6

Turn In:

1. Code Assignment – Exercise #1 Due in class on ?????, ???? ??, 2012
    a) For each exercise, a hardcopy package must be generated to include the following items:
        - Cover Sheet (see the sample copy include in lecture note)
        - Exercise/problem statement
        - Copy of your source file (C++ program named as **`cis25Fall2012YourNameLab6Ex1`**)
        - Copy of output (copy and paste from output screen as possible)
    b) Submitting one hard copy package for each exercise; and
    c) Emailing each document as follows,
        - One message for each exercise.
        - Attaching the source file that was created in part a).
        - The SUBJECT line of each message should have one of the following lines:

          `CIS 25 Fall 2012 Your Name : Lab 6 – Exercise #1`

          Or,

          `cis25Fall2012YourNameLab6Ex1.cpp`

2. Q.E.D.

1. Code Assignment/Exercises

Exercise #1

Consider the following classes:

```
class FractionYourName;

class PointYourName;

class RectangleYourName;
```

The incomplete classes and code are given as follows,

```
//Header Files

/**
 *Program Name:fractionYourName.h
 *Discussion:  Declaration File --
 *                  FractionYourName class
 */
#ifndef FRACTIONYOURNAME_H
#define FRACTIONYOURNAME_H

class FractionYourName {
public:

  // YOUR CODE HERE
  //   Must have at least the default constructor,
  //                           copy contructor,
  //                           destructor, and
  //                           assignment operator function
  //   and other members

private:
  int num;  // numerator will preserve fraction-negativity;
            // i.e., negativity of a fraction will be
            // assigned to its numerator

  int denom; // non-zero value for denominator

};

// your I/O OPERATOR functions here

#endif

/**
 *Program Name:  pointYourName.h
 *Discussion:    Declaration File --
 *                 PointYourName Class
 */
#ifndef POINTYOURNAME_H
#define POINTYOURNAME_H

#include "fractionYourName.h"

//Declarations
```

```
class PointYourName {
public:

  // YOUR CODE HERE
  //   Must have at least the default constructor,
  //                           copy contructor,
  //                           destructor, and
  //                           assignment operator function

  // operations

  void moveBy(FractionYourName delX, FractionYourName delY) {

    // YOUR CODE HERE
  }

  void moveBy(int iOld) {  // update as needed

    // YOUR CODE HERE
  }

  void flipByX() {  // update as needed

    // YOUR CODE HERE
  }

  void flipByY() {  // update as needed

    // YOUR CODE HERE
  }

  void flipThroughOrigin() {  // update as needed

    // YOUR CODE HERE
  }

  void print() {  // update as needed

    // YOUR CODE HERE
  }

  // add operator functions as needed

private:
  FractionYourName x; // x-coordinate of the point
  FractionYourName y; // y-coordinate of the point
};

// your I/O OPERATOR functions here

#endif

/**
 *Program Name:  yourNameRectangle.h
 *Discussion:    Declaration File --
 *                 YourNameRectangle Class
 */
#ifndef RECTANGLEYOURNAME_H
#define RECTANGLEYOURNAME_H
```

```
#include "fractionYourName.h"
#include "pointYourName.h"

//Declarations

class RectangleYourName {
public:

  // YOUR CODE HERE
  //   Must have at least the default constructor,
  //                           copy contructor,
  //                           destructor, and
  //                           assignment operator function
  //   and other members

private:
  PointYourName lowerLeft;
  FractionYourName len;  // No negative value allowed
  FractionYourName wid;  // No negative value allowed
};

// your I/O OPERATOR functions here

#endif
```

You are asked to

(1) Add more member functions and operator functions as needed for each given class, and

(2) Provide complete definitions for all member functions so that each given class is proper and working.

(3) Save all classes in appropriate `*.h` and `*.cpp` files with names starting with "`cis25Fall2012`"appropriately

(4) Run a menu program and save the output. A sample program output is given as follows,

(a) The output screen should have the following lines displayed before any other display or input can be seen,

```
CIS 25 – C++ Programming
Laney College
Your Name

Assignment Information --
  Assignment Number:  Lab 6,
                      Exercise #1
  Written by:         Your Name
  Due Date:           Due Date
```

(b) Then, the output screen should also be followed by,

```
MENU
(1)    Create two Rectangle objects
(2)    Compare by volume
(3)    Compare by area
```

```
(4)    Print two Rectangle objects
(5)    Quit

Enter your option (between 1 through 5) : 1

  //Provide some sample output of your program

Enter your option (between 1 through 5) : 2

  //Provide some sample output of your program

Enter your option (between 1 through 5) : 3

  //Provide some sample output of your program

Enter your option (between 1 through 5) : 4

  //Provide some sample output of your program

Enter your option (between 1 through 5) : 5

  Thank you and good bye!
```

Note! You should at least test your program with the points below used to create the rectangles:

UpperLeft #1:	(2/4, 2/1)
LowerRight #1:	(4/1, 1/1)
UpperLeft #2:	(-1/1, -1/2)
LowerRight #2:	(2/1, -2/1)