Lab 6

Turn In:

1. Exercise #1 – Due in class on Thursday, November xx, 2015
   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 (**Optional**)
      - Copy of your source file (Java program)
      - Copy of output (copy and paste to the end of your program as COMMENT block)
      - Copy of YOUR OUTPUT_CODE_LOGIC COMMENTS (as a separate comment block) after YOUR PROGRAM OUTPUT
   b) Submitting in class one hard copy for each document
   c) Emailing each document as follows,
      - One message for each exercise.
      - Attaching the source file(s) that was created in Part (a).
      - The SUBJECT line of the message MUST have one of the following lines:

        `CIS 25 Fall 2015 Your Name : Lab 6 – Exercise #1`

        Or,

        `cis25Fall2015YourNameLab6Ex1.cpp`

3. Q.E.D.

1. Code Assignment/Exercise

EXERCISE 1

Consider the following classes:

```
class FractionYourName;

class PointYourName; // To Be Created
```

The incomplete class definitions 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
```

You are asked to

(1) Add more member functions and operator functions as needed for the **`Point`** class; and

(2) Provide complete definitions for all member functions so that the given class is proper and working properly; and

(3) Add/Provide complete definitions for all needed non-member functions to perform reasonable tasks; and

(4) Save all classes in appropriate `*.h` and `*.cpp` files with appropriate names; and

(5) Run a menu program named as `cis25Fall2015YourNameLab6Ex1.cpp` with a driver named as `cis25Fall2015YourNameLab6Ex1Driver.cpp` 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 Point   *
*  1. Initializing *
*  2. Moving       *
*  3. Flipping     *
*  4. Printing     *
*  5. Quitting     *
*******************
Select an option (use integer value only): 2

  Moving Option --

    Not a proper call as no Points are available!

*******************
*    MENU Point   *
*  1. Initializing *
*  2. Moving       *
*  3. Flipping     *
*  4. Printing     *
*  5. Quitting     *
*******************
Select an option (use integer value only): 1

  Initializing Option --

    // Providing proper values & steps!

*******************
*    MENU Point   *
*  1. Initializing *
*  2. Moving       *
*  3. Flipping     *
*  4. Printing     *
*  5. Quitting     *
*******************
Select an option (use integer value only): 4
```

```
  Printing Option --

    // Displaying proper values & formats!

********************
*    MENU Point    *
*  1. Initializing *
*  2. Moving       *
*  3. Flipping     *
*  4. Printing     *
*  5. Quitting     *
********************
Select an option (use integer value only): 2

  Moving Option --

    *********************
    * MENU MovingPoint  *
    *  1. By (frX, frY) *
    *  2. By fr         *
    *  3. Printing      *
    *  4. Returning     *
    *********************
    Select an option (use integer value only): 1

      // Providing proper values & steps!

    *********************
    * MENU MovingPoint  *
    *  1. By (frX, frY) *
    *  2. By fr         *
    *  3. Printing      *
    *  4. Returning     *
    *********************
    Select an option (use integer value only): 2

      // Providing proper values & steps!

    *********************
    * MENU MovingPoint  *
    *  1. By (frX, frY) *
    *  2. By fr         *
    *  3. Printing      *
    *  4. Returning     *
    *********************
    Select an option (use integer value only): 3

      // Displaying proper values & formats!

    *********************
    * MENU MovingPoint  *
    *  1. By (frX, frY) *
    *  2. By fr         *
    *  3. Printing      *
    *  4. Returning     *
    *********************
    Select an option (use integer value only): 4

    Returning to "MENU Point"

********************
*    MENU Point    *
*   1. Initializing *
*   2. Moving       *
*   3. Flipping     *
*   4. Printing     *
*   5. Quitting     *
********************
Select an option (use integer value only): 3

  Flipping Option --

    **********************
    * MENU FlippingPoint *
    *  1. By Y           *
    *  2. By X           *
    *  3. By Origin      *
    *  4. Printing       *
    *  5. Returning      *
    **********************
    Select an option (use integer value only): 1

      // Providing proper values & steps!

    **********************
    * MENU FlippingPoint *
    *  1. By Y           *
    *  2. By X           *
    *  3. By Origin      *
    *  4. Printing       *
    *  5. Returning      *
    **********************
    Select an option (use integer value only): 2

      // Providing proper values & steps!

    **********************
    * MENU FlippingPoint *
    *  1. By Y           *
    *  2. By X           *
    *  3. By Origin      *
    *  4. Printing       *
    *  5. Returning      *
    **********************
    Select an option (use integer value only): 3

      // Providing proper values & steps!

    **********************
    * MENU FlippingPoint *
    *  1. By Y           *
    *  2. By X           *
    *  3. By Origin      *
    *   4. Printing       *
    *   5. Returning      *
    **********************
    Select an option (use integer value only): 4

      // Displaying proper values & formats!

    **********************
    * MENU FlippingPoint *
    *   1. By Y           *
    *   2. By X           *
    *   3. By Origin      *
    *   4. Printing       *
    *   5. Returning      *
    **********************
    Select an option (use integer value only): 5

    Returning to "MENU Point"

********************
*     MENU Point    *
*   1. Initializing *
*   2. Moving       *
*   3. Flipping     *
*   4. Printing     *
*   5. Quitting     *
********************
Select an option (use integer value only): 5

  Having Fun ...
```

Note!

You should at least test your program with the information given below.

```
Point #1:     (1/2, 2/1)
Point #2:     (4/1, 1/1)

Point #3:     (-1/1, -1/2)
Point #4:     (2/1, -2/1)
```