Lab 8

Turn In:

1. Coding Assignment – Due Thursday, ???? ??, 2013
    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 program (named as **cis27Spring2013YourNameLab8Ex1)**
        -   Copy of output (copy and paste from output screen as possible)

    b) Submitting in class one hard copy package for each exercise; and
    c) Emailing your work as follows,
        -   One message for each exercise.
        -   Attaching the source file (program) that was created in part (a).
        -   The SUBJECT line of the message should have one of the following lines:
            CIS 27 Spring 2013 Your Name : Lab 8 – Exercise #1
            Or,
            `cis27Spring2013YourNameLab8Ex1`

2. Q.E.D.

****

1. Coding Assignment

Exercise #1

1. Write a menu program to have the display below,

    ```
    CIS 27 – C Programming
    Laney College
    Your Name

    Assignment Information --
      Assignment Number:  Lab 08,
                          Coding Assignment -- Exercise #1
      Written by:         Your Name
      Submitted Date:     Due Date
    ```

2. You are going to work with polynomials that have fraction as coefficients and integers as powers/exponents. The polynomials will be created as linked lists with the information and specifications given below.

    ```c
    struct PolyTermYourName {
      int expo;
      struct FractionYourName coeff;
    };

    typedef PolyTermYourName* PolyTermAdrYourName;

    struct PolyNodeYourName {
      PolyTermAdrYourName* dataPtr;
      struct PolyNodeYourName* next;
    };

    typedef struct PolyNodeYourName* PolyNodeAdrYourName;

    typedef struct PolyNodeYourName* PolyListYourName;

    typedef PolyListYourName* PolyListAdrYourName;
    ```

3. And, you are supposed to have worked on previous supportive functions to create polynomials.

    You are going to implement 2 functions named as below.

    ```c
    PolyListAdrYourName addPolyYourName(PolyListYourName ,
                                        PolyListYourName);

    PolyListAdrYourName multiplyPolyYourName(PolyListYourName ,
                                             PolyListYourName);
    ```

4. Write a **menu** program to have the above options for the polynomials.

    Your menu program should not use global data; data should be allowed to be read in and stored dynamically.

5. Name your program as **cis27Spring2013YourNameLab8Ex1.c**

    Test your output with the data below.

    ```
         Poly #1:  {{2, 1/1}, {1, 3/4}, {0, 5/12}}
       Poly #2:  {{4, 1/1}, {2, -3/7}, {1, 4/9}, {0, 2/11}}
    ```

Make sure that the output is reasonable and detailed enough so that the user would understand the list – Use `printf()` measurably.

Attach the output at the end of your source code (as comment).

```
*****************************
*     POLYNOMIAL OPERATIONS   *
* 1. Creating polynomials     *
* 2. Adding polynomials       *
* 3. Multiplying polynomials *
* 4. Displaying polynomials   *
* 5. Clearing polynomials     *
* 6. Quit                     *
*****************************
Select the option (1 through 6): 7

   You should not be in this class!


*****************************
*     POLYNOMIAL OPERATIONS   *
* 1. Creating polynomials     *
* 2. Adding polynomials       *
* 3. Multiplying polynomials *
* 4. Displaying polynomials   *
* 5. Clearing polynomials     *
* 6. Quit                     *
*****************************
Select the option (1 through 6): 4

   Left Poly Pointer: 0
   Right Poly Pointer: 0
   Resulting Poly Pointer: 0


*****************************
*     POLYNOMIAL OPERATIONS   *
* 1. Creating polynomials     *
* 2. Adding polynomials       *
* 3. Multiplying polynomials *
* 4. Displaying polynomials   *
* 5. Clearing polynomials     *
* 6. Quit                     *
*****************************
Select the option (1 through 6): 1

   /*Performing the required task(s) and your code must ALSO print
      1. Description/explanation of the method or approach that you
         use to create 2 polynomials; and
      2. The listing of all functions involved in the process.
   */


*****************************
*     POLYNOMIAL OPERATIONS   *
* 1. Creating polynomials     *
* 2. Adding polynomials       *
* 3. Multiplying polynomials *
```

```
* 4. Displaying polynomials   *
* 5. Clearing polynomials      *
* 6. Quit                      *
******************************
Select the option (1 through 6): 4

   Left Poly Pointer: SOME NONE ZERO ADDRESS and DISPLAYING Poly
      1/1x2 + 3/4x + 5/12
   Right Poly Pointer: SOME NONE ZERO ADDRESS and DISPLAYING Poly
      1/1x4 - 3/7x2 + 4/9x + 2/11
   Resulting Poly Pointer: 0


******************************
*      POLYNOMIAL OPERATIONS   *
* 1. Creating polynomials      *
* 2. Adding polynomials        *
* 3. Multiplying polynomials  *
* 4. Displaying polynomials    *
* 5. Clearing polynomials      *
* 6. Quit                      *
******************************
Select the option (1 through 6): 2

   /*Performing the required task(s) and your code must ALSO print
        1. Description/explanation of the method or approach that you
           use to add 2 polynomials; and
        2. The listing of all functions involved in the process.
   */


******************************
*      POLYNOMIAL OPERATIONS   *
* 1. Creating polynomials      *
* 2. Adding polynomials        *
* 3. Multiplying polynomials  *
* 4. Displaying polynomials    *
* 5. Clearing polynomials      *
* 6. Quit                      *
******************************
Select the option (1 through 6): 4

   Left Poly Pointer: SOME NONE ZERO ADDRESS and DISPLAYING Poly
      1/1x2 + 3/4x + 5/12
   Right Poly Pointer: SOME NONE ZERO ADDRESS and DISPLAYING Poly
      1/1x4 - 3/7x2 + 4/9x + 2/11
   Resulting Poly Pointer: SOME NONE ZERO ADDRESS and DISPLAYING Poly
      1/1x4 - 3/7x2 + 43/36x + 79/132


******************************
*      POLYNOMIAL OPERATIONS   *
* 1. Creating polynomials      *
* 2. Adding polynomials        *
* 3. Multiplying polynomials  *
* 4. Displaying polynomials    *
* 5. Clearing polynomials      *
* 6. Quit                      *
******************************
```

```
Select the option (1 through 6): 3

   /*Performing the required task(s) and your code must ALSO print
       1. Description/explanation of the method or approach that you
          use to multiply 2 polynomials; and
       2. The listing of all functions involved in the process.
   */



*****************************
*     POLYNOMIAL OPERATIONS   *
* 1. Creating polynomials     *
* 2. Adding polynomials       *
* 3. Multiplying polynomials *
* 4. Displaying polynomials   *
* 5. Clearing polynomials     *
* 6. Quit                     *
*****************************
Select the option (1 through 6): 4

   Left Poly Pointer: SOME NONE ZERO ADDRESS and DISPLAYING Poly
      1/1x2 + 3/4x + 5/12
   Right Poly Pointer: SOME NONE ZERO ADDRESS and DISPLAYING Poly
      1/1x4 – 3/7x2 + 4/9x + 2/11
   Resulting Poly Pointer: SOME NONE ZERO ADDRESS and DISPLAYING Poly
      1/1x6 + 3/4x5 – 1/84x4 + 31/252x3 + 871/924x2 + 191/594x + 5/66



*****************************
*     POLYNOMIAL OPERATIONS   *
* 1. Creating polynomials     *
* 2. Adding polynomials       *
* 3. Multiplying polynomials *
* 4. Displaying polynomials   *
* 5. Clearing polynomials     *
* 6. Quit                     *
*****************************
Select the option (1 through 6): 5
   /*Releasing selected polynomial(s)
     For example, clearing and releasing left polynomial
   */



*****************************
*     POLYNOMIAL OPERATIONS   *
* 1. Creating polynomials     *
* 2. Adding polynomials       *
* 3. Multiplying polynomials *
* 4. Displaying polynomials   *
* 5. Clearing polynomials     *
* 6. Quit                     *
*****************************
Select the option (1 through 6): 4

   Left Poly Pointer: 0
   Right Poly Pointer: SOME NONE ZERO ADDRESS and DISPLAYING Poly
      1/1x4 – 3/7x2 + 4/9x + 2/11
   Resulting Poly Pointer: 0
```

```
*****************************
*     POLYNOMIAL OPERATIONS   *
* 1. Creating polynomials     *
* 2. Adding polynomials       *
* 3. Multiplying polynomials  *
* 4. Displaying polynomials   *
* 5. Clearing polynomials     *
* 6. Quit                     *
*****************************
Select the option (1 through 6): 5
  /*Releasing selected polynomial(s)
    For example, clearing and releasing right polynomial
  */


*****************************
*     POLYNOMIAL OPERATIONS   *
* 1. Creating polynomials     *
* 2. Adding polynomials       *
* 3. Multiplying polynomials  *
* 4. Displaying polynomials   *
* 5. Clearing polynomials     *
* 6. Quit                     *
*****************************
Select the option (1 through 6): 4

  Left Poly Pointer: 0
  Right Poly Pointer: 0
  Resulting Poly Pointer: 0


*****************************
*     POLYNOMIAL OPERATIONS   *
* 1. Creating polynomials     *
* 2. Adding polynomials       *
* 3. Multiplying polynomials  *
* 4. Displaying polynomials   *
* 5. Clearing polynomials     *
* 6. Quit                     *
*****************************
Select the option (1 through 6): 6

  Having Fun!
```