LAB DIRECTIONS for LAB 4/16/2015

Based on Lesson Set 11

1. Create a folder named **Lesson Set 11**. Put all files you create for this lab in this folder.

2. **ARRAY OF STRUCTURES**.
   Bring in the program from **Lesson Set 11 Source Code** folder named **`array_struct.cpp`** .
   a. Fill in the code as indicated by the comments

   b. Compile & run your program using the same data as in the sample run below and then create a screen capture of your code running. Put your screen capture in a document named **Lesson Set 11 Screen Captures**.

Sample Run:

```
Enter this year's income for tax payer 1: 45000
Enter the tax rate for tax payer # 1: .19
Enter this year's income for tax payer 2: 60000
Enter the tax rate for tax payer # 2: .23
Enter this year's income for tax payer 3: 12000
Enter the tax rate for tax payer # 3: .01
Enter this year's income for tax payer 4: 104000
Enter the tax rate for tax payer # 4: .30
Enter this year's income for tax payer 5: 50000
Enter the tax rate for tax payer # 5: .22

Tax Payer # 1: $ 8550.00
Tax Payer # 2: $ 13800.00
Tax Payer # 3: $ 120.00
Tax Payer # 4: $ 31200.00
Tax Payer # 5: $ 11000.00
```

3. **NESTED STRUCTURES.**
   Bring in the program from Lesson Set 11 Source Code folder named **`nestedRect_struct.cpp`**.
   a. Fill in the code as indicated by the comments.

   b. Modify the program by adding a third structure named `Results` which has two members: `area` and `perimeter`. Adjust the `Rectangle` structure so that both of its members are structure variables.

   c. Modify the program again by adding functions that compute the area and perimeter. The structure variables should be passed as arguments to the functions.

   d. After you complete a, b, & c, compile & run your program using the same data as in the sample run below and then create a screen capture of your code running. Put your screen capture in a document named **Lesson Set 11 Screen Captures**.

Sample Run:

```
Enter the length of a rectangle: 9
Enter the width of a rectangle: 6
The area of the rectangle is 54.00
The perimeter of the rectangle is 30.00
```

4. Write a program (from scratch) named **`cubscout.cpp`** that uses a structure named `CubScout` to store the following information:

   name of the cub scout (string)
   the grade in school the cub scout is in (int)
   the name of the den that the cub scout is in (string)

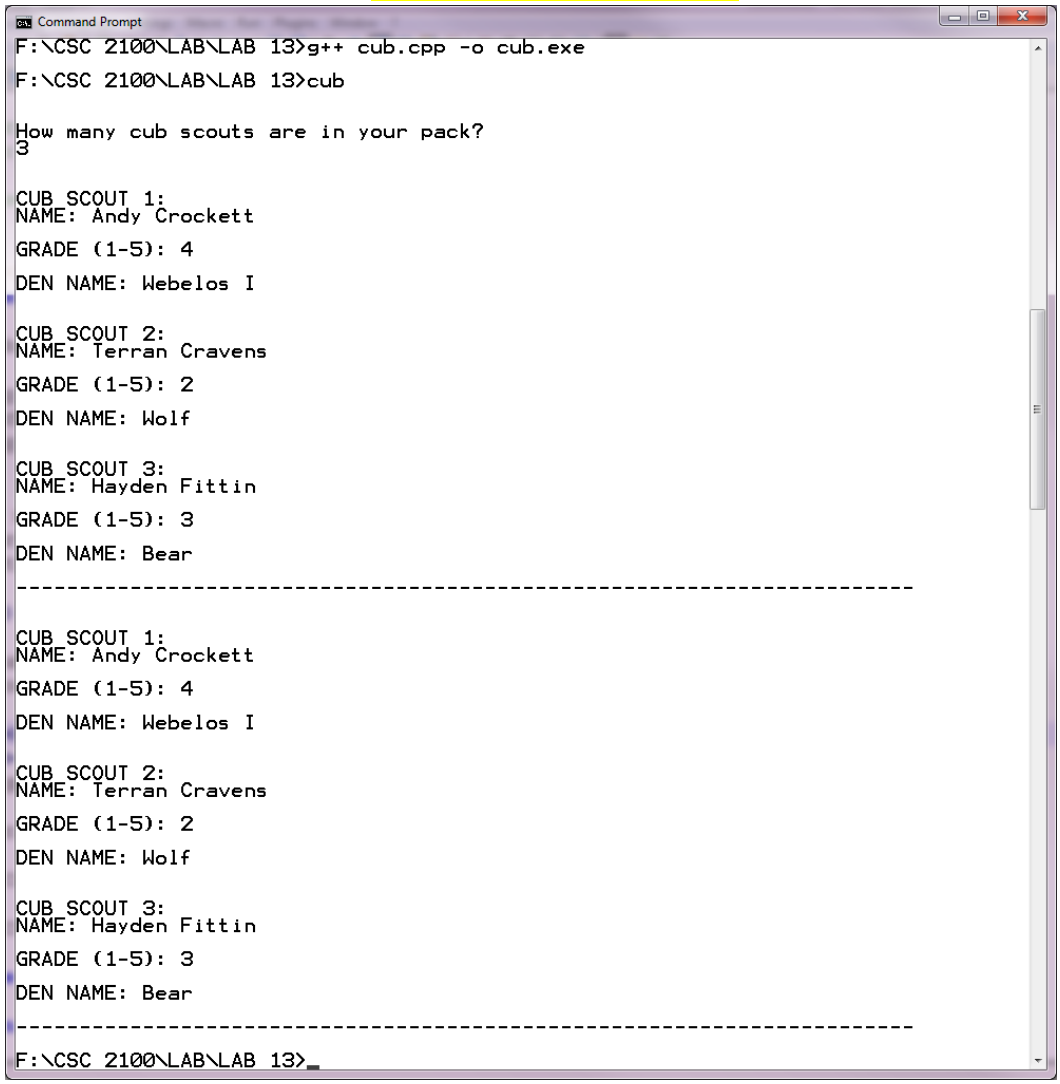
   a. Ask the user for the number of cub scouts in their pack.

   b. Then, call a function called makeArray that will accept the number of cub scouts as a parameter, and return a pointer to a dynamically allocated array of CubScout variables.

   c. Then, call the enterCubScouts function, which will accept the pointer to the allocated array and the number of cub scouts. Use a for loop to enter the user's data for each cub scout in the array.

   d. Then, call the printCubScouts function, which will print out the array contents in a neat, organized way.

   e. After you complete a,b,c, and d then compile & run your program using the same data as in the sample screen caputre below and then create your own screen capture of your code running. Put your screen capture in a document named **Lesson Set 11 Screen Captures**.



What to Turn In: (by Wednesday, April 22, 2015)

- array_struct.cpp
- nestedRect_struct.cpp
- cubscout.cpp
- Lesson Set 11 Screen Captures

How you will be graded

array_struct.cpp	20 points	FOLLOWS SPECIFICATIONS / DEFINES STRUCTURE CORRECTLY / CREATES AN ARRAY OF THE STRUCTURE / READS IN DATA CORRECTLY / COMPUTES THE TAXES CORRECTLY / PRINTS IFNROMATION TO THE SCREEN CORRECTLY
nestedRect_struct.cpp	20 points	FOLLOWS SPECIFICATIONS / CREATES THREE STRUCTURES CORRECTLY / CREATED THE VARIABLE CORRECTLY / READ IN THE LENGTH & WIDTH / COMPUTES AREA & PERIMETER IN A FUNCTION AS SPECIFIED / PRINTS OUT THE RESULTS VIA THE STRUCTURE VARIABLE
cubscout.cpp	45 points	FOLLOWS SPECIFICATIONS / CREATES THE STRUCTURE CORRECTLY / DYNAMICALLY ALLOCATES & DELETES AN ARRAY OF CUBSCOUT STRUCTURE / CREATES FUNCTIONS CORRECTLY / ALLOWS USER TO ENTER INFORMATION CORRECTLY / PRINTS INFORMATION CORRECTLY
Lesson Set 11 Screen Captures	15 points	Three screen captures total (5 points each)