CSE230

HOMEWORK - Spring 2015

HOMEWORK 2 - due Tuesday, March 10th no later than 5:00PM

REMINDER:

- **Make sure you read the warnings about academic dishonesty. *Remember, all work you submit for homework or exams MUST be your own work. Group efforts are not allowed for homework assignments.***

For this assignment you will be required to write a program which accepts a text file containing information about a series of student information. Your program will then store this information in an array of structs and finally output this data after it has been sorted by name.

Here is the format for the input file:

Term, Student ID, "Last Name", "First Name", Subject, Catalog Number, ="Section"

- **Term is a 4 digit integer.**
- **Student ID is an integer 9 digits long.**
- **Last Name is a string up to 15 characters long enclosed in quotation marks and may contain white space.**
- **First Name is a string up to 15 characters long enclosed in quotation marks and may contain white space.**
- **Subject is a string 3 characters long.**
- **Catalog Number is a 3 digit integer.**
- **Section is a string 3 characters long enclosed in quotation marks and preceded by an equal sign.**

Your program must also follow these requirements:

- **You must prompt the user for the name of the input file, which the user will then enter by using the keyboard**
- **You must use an array of structs to store the information from the input file**
- **Your output should be printed in a neatly formatted table (see SAMPLE OUTPUT below)**
- **You may use any sorting algorithm you wish to perform the sorting operation, including any algorithms listed in textbooks. You may also choose to use the operating system's "sort" by calling the system() function along with proper piping to "sort" by student name.**
- **If there is an error reading from the file or if any input data is invalid you should inform the user of the situation.**
  In the event that the input data is invalid, you must ignore the record and print along with your error message the name of the student.
- **Your program should make good use of functions and be well commented**

- You must use multiple (two or more) source files for your program
- You must include a "makefile" which correctly compiles your multiple source files

SAMPLE INPUT AND OUTPUT

Note that the input file is in green and the output follows in blue:

```
1301,105515018,"Boatswain","Michael R.",CSE, 230,="R01"
1301,103993269,"Castille","Michael Jr",CSE, 230,="R03"
1301,103993267,"Castille","Janice",CSE, 230,="R03"
1301,104727546,"Bonczek","Claude",CSE, 230,="R01"
1301,104731479,"Cruz","Akeem Mike",CSE, 230,="R01"
1301,105415888,"Digiacomo","Stephen",CSE, 230,="R02"
1301,106034479,"Annitto Grassis","Susan",CSE, 230,="R04"
1301,106034459,"Als","Christian",CSE, 230,="R01"
```

```
Last Name, First Name             Term      ID      Course   Section
-------------------------------- ----  ---------   ------   -------
Als, Christian                   1301  106034459   CSE230     R01
Annitto Grassis, Susan           1301  106034479   CSE230     R04
Boatswain, Michael R.            1301  105515018   CSE230     R01
Bonczek, Claude                  1301  104727546   CSE230     R01
Castille, Janice                 1301  103993267   CSE230     R03
Castille, Michael Jr             1301  103993269   CSE230     R03
Cruz, Akeem Mike                 1301  104731479   CSE230     R01
Digiacomo, Stephen               1301  105415888   CSE230     R02
```

GRADING KEY

- **(5 pts): Proper use of Comments (Include your name, assignment number and a brief description of the program at the top of main program. Also, include name of the C compiler that you have used).**
- **(5 pts): Good use of Functions**
- **(5 pts): Use of Multiple Source Files**
- **(5 pts): Inclusion of a makefile**
- **(15 pts): Student information is stored using an array of structs**
- **(5 pts): Input file name is read correctly from keyboard**
- **(10 pts): Error message displayed when a problem reading information from a file has been encountered**
- **(10 pts): Program compiles without error**
- **(15 pts): Information for each student is correctly displayed**
- **(5 pts): Information is printed in a neatly formatted table**
- **(20 pts): The information has been correctly sorted by student name**

EXTRA CREDIT - OPTIONAL (5 points)

The user may provide input filename and/or output filename on command line. For example:

```
myProg  inFile              // display the results on standard output
myProg  inFile  outFile     // write the results to outFile
```

SUBMISSION INFO

1. **Create the necessary source files and label them accordingly. For example, hw2.c, sort.c, output.c, etc.**
2. **As part of a comment at the beginning of each file, include your full name, Stony Brook Solar ID# and your email address. Also, include a brief description of the program.**
3. **Login to your grading account and click "Submit Assignment" to upload and submit all files of your assignment. Note, if you're taking more than one course with me, your username is different for each course.**
