C201 Homework #4 Due 2/24/14

Write a program that allows the user to determine how many lines, words and characters are in a file specified by the user. The program expects the user to pass information about what file to read and exactly what to count via a command line argument. The program is invoked via a command of the form at DOS

hw4 filename */options*

where *options* is a combination of characters "l" (lines), "w" (words), "c" (chars). For example

```
hw4 words.1          {default, reports char, word and line count for the file words.1}
hw4 words.2 /cw      { reports char and word count for file words.2}
hw4 words.2 /x       { Error: program sends error message to screen }
```

If the user uses incorrect command syntax, for example, if the character immediately following the "/" is not a "c", "w" or "l", an error message should be displayed that explains the command line syntax. There should be more than one type of error message.

Hints and Suggestions and Warnings

1) For the purpose of this assignment, a word is a contiguous string of non-whitespace characters delimited by whitespace characters. Don't forget about **isspace**. Note that whitespace characters are characters, so you need to count them as well.

2) Program will only deal with file input via command line as argument to program. Keyboard input will not work, must have at least two arguments on command line. Also DOS redirection of output will work.

3) One reason for this assignment is to provide some experience with C++ structs. Structs work well for this assignment, since there are so many pieces of information to keep track of. Need to use following structs for full credit.

```
struct CmdLineRecord
 {
   int  SyntaxError;          // True if user syntax is incorrect
   int  WantsLineCount;       // Set to true if user wants line count
   int  WantsWordCount;       // Set to true if user wants word count
   int  WantsCharCount;       // Set to true if user wants char count
  };
struct  CountsRecord
 {
   unsigned LineCount;
   unsigned WordCount;
   unsigned CharCount;
 };
```

4) A working shell has been created for you, thanks to me. It is found on my website and is called "hw4shell.cpp". Make good use of it, it will run the way it is.

5) Output should be tested with the files of words.1, words.2, words.3, words.4 and words.5, which are the same files used in homework #1.

6) You can use command line arguments from inside the IDE. See the handouts on “Command Line Arguments in C++ 2008.NET”. If you are using 6.0 I have a had out for that as well.

7) Screen output can be captured as usual or use DOS redirection to a file, then print the file.