Assignment #6

Multithreading

CS 3354.251 and 252 Spring 2017
Instructor: Jill Seaman

Due: before class **Wednesday, 4/26/2017** (upload electronic copy by 10:30am).

You can do this program in four steps:

1. Write a Java program that counts the words in one or more files. Start a new thread for each file. For example, if you call

   ```
   java WordCountTester report.txt address.txt Homework.java
   ```

   then the program might print:

   ```
   address.txt: 1052
   Homework.java: 445
   report.txt: 2099
   ```

   Your program should work for any number of files listed on the command line. A collection of text files is provided on the class website in a zip file.

2. Modify your program to print the total of the words in all files after the last counting thread has completed.

   ```
   address.txt: 1052
   Homework.java: 445
   report.txt: 2099
   total words: 3596
   ```

3. Add a class called `Counter` that has an integer field initialized to 0. It should provide three methods, a constructor, a mutator to add one to the count and an accessor to return the current value of the count. Use a shared instance of this class to track to count of the total words in all files. Notice when you test the code that the count will likely be incorrect, and probably less than the expected total.

4. Add a `ReentrantLock` to the Counter class to make it threadsafe and make your program always return the correct total.

NOTES:

- This assignment may be done with a partner.

- Use the package "assign6" for your classes and put your files in the appropriate directory structure.

- Do not submit intermediate versions of the program, just the final version that includes the complete (or partial) functionality.

- Follow the style guidelines from the class website. **Use javadoc comments for all of your public elements.**

Submit:

Please combine your *.java files into a single zip file (assign6_xxxxxx_yyyyyy.zip). The xxxxxx and yyyyyy are your TX State NetIDs (mine is js236, You may have two, one for each partner. If you are working solo, you will only have one). Submit an **electronic copy**, using the Assignments tool on the TRACS website for this class.