SE375 - Laboratory Assignment 05

Word Count and Inverted Index: The Final Version

The new versions of the Word Count and Inverted Index applications requires the following features to be implemented. As usual, there must be a thread for each file that is passed as a parameter. You can download the following files for testing your application.

- `https://www.cs.umb.edu/~smimarog/textmining/datasets/r8-train-all-terms.txt`
- `https://www.cs.umb.edu/~smimarog/textmining/datasets/r8-test-all-terms.txt`
- `https://www.cs.umb.edu/~smimarog/textmining/datasets/r52-train-all-terms.txt`
- `https://www.cs.umb.edu/~smimarog/textmining/datasets/r52-test-all-terms.txt`

Instead of using the `synchronized` keyword, implement the new versions by using `Locks`. The application will have two shared data structures: one for the word count and one for the inverted index. They will be updated at the same time: when a new word is read from the file in the thread, the thread will lock both shared data structures and once their update is complete, will unlock both.

Once the implementation is complete, try locking one data structure at a time: that is, don't lock two data structures at the same time, but lock one of them first, then, when you are done, unlock it, and lock the other one.

Run both versions 100 times, and find the average running time for each.

You are free to use other Java constructs as you like as long as you use locks.