Laboratory Assignment #4

Part 1: Super Store with Thread Pools and Thread-safe Collections

You are now very familiar with the Super Store application. In your previous laboratory assignment, you have used threads with a shared data structure. Your task for this assignment is to use a thread-safe collection that will be shared between threads that operate on files. Instead of creating a new thread for each file, you will also have to assign one from a thread pool of size 10. You should use the Java `ExecutorService` to do so.

You should follow these steps in your Java application: (1) For each file passed as a parameter, you will assign a thread from the thread pool to parse the file and a shared thread-safe data structure to save the results. (2) Each thread reads the file assigned to it and uses the shared thread-safe data structure to add or update the sales statistics. (3) Once all threads are complete, ask the user for a month they are looking for, and display the number of in-store, online and total sales of that month.

Try your application with datasets given for different years.

Part 2: Per Product Sale Statistics with Thread Pools and Thread-safe Collections

Repeat the same approach for getting per product sale statistics. This time, you are asked to find the total sales (TL) data for certain products. This is a similar task as the previous week's second part, except we have now named it as "per product sale statistics" instead of "inverted index". This task has a minor difference, however, that you will use thread pools and thread-safe collections this time.

Use one thread per file from the thread pool with a shared thread-safe data structure passed as argument to each thread. Once the threads are complete, let the user query the data structure using the product name.

Try your application with datasets given for different years.