Dear Students,

The following is a description of what aspects you are expected to submit with Phase 1 of the Project. It must be written in JAVA and you cannot use 3rd party software, but only the APIs provided by Java in the official JDK (Java Development Kit.) It must be able to be compiled and execute from the Command Line and has to be able to run on a PC. On PCs, the command line can be initiated by running command.exe or cmd.exe. You must submit in ONE EMAIL from your Qmail to Class Project Email ALL .java files, any input and output files for testing and verification purposes, and a Readme.txt file which states the steps a user of your project will need to compile and run your program from the command line.

As we will learn at the end of the semester, the first phase of design or implementation is prototyping. Prototyping tries to show "proof of concept" but does not actually have full functionality. This is our first phase. I am interested that you demonstrate your ability to program code that has the following concepts included, inspired by the data found on the website you were assigned:

1) Your program has an internal storage structure that will warehouse data obtained.

2) This storage structure can ADD/DELETE/MODIFY/SEARCH/PRINT data found in your structure. (Again this phase just has to demonstrate, although it would be advantageous if you implement this more fully according to the needs of your website data.)

3) Your program has an input text file such as a set of data that will initialize the above data storage structure. (A suggested format is provided below.)

4) The system can print out the data found in your data storage structure to an output text file, whether all or some according to a search.

5) No GUIs are required for this Phase and No outputs to terminal, only to text file(s).

6) Your program parses flags and arguments from command line. Minimally, the name of an input file and the name of an output file and the directory path where the input and output files are found; and the name of a transaction log (which is an output text file, described next).

7) Whenever an ADD/DELETE/MODIFY/SEARCH/PRINT method is called you should write the command name with the necessary parameters to a transaction log. Separate the data fields outputted (only one line per command processed\_ should be separated ("delimited") by a vertical bar "|". (I am requesting the vertical bar as a standardization amongst all student's projects.) The first field of the outputted line is a timestamp of the actual time that the method is processing the command and the second field is the name of the command performed; the remaining fields of this outputted line will be the data passed to the command to process. The transaction log does not have to be outputted while the system is running must be completely outputted when the system is finished. One last note on file formats: if for some reason the data for a given field is missing, will have the convention that -1 (negative one) is the value to indicate "NULL". Don't use zero since some data fields can legitimately have a zero or null value.

Timestamp is the time that the transaction was made. If you need more info on Timestamps, read the following tutorials:

<https://docs.oracle.com/javase/10/docs/api/java/sql/Timestamp.html>

<https://mkyong.com/java/how-to-get-current-timestamps-in-java/>

If you want an example of what the transaction log file would look like is as follows:

Suppose your system will be exploring a website that sells clothing. Then, perhaps, the fields you will storing in your data storage are as follows:

TimeStamp|TransactionType|InventoryNumber|ProductName|ProductCompany|ItemCategory|ItemType|Size1|Size2|PriceOrig|PriceDiscounted|QuantityAvailable|Seller

where ItemCategory would specify whether for example, the item in the record is a shirt, pants, skirt, shoes, accessory etc. and ItemType would be (alphabetically listed) Adult, Baby, Child, etc. Size is listed as  Size1 and Size2 in case you are storing a "range" in which case Size1 is lower bound and Size2 is upper bound and if only one size, then Size1=Size2. If there is no price discount, then PriceOrig=PriceDiscounted. You are NOT required to do exactly the way I just wrote; it is only meant as an example. YOU need to decide what is best for your system (based on the assigned website.) Also note that the above parameters are what you would need for an "INSERT" transaction. "DELETE" would require much less. Also note that you may need to add to these fields as the semester progresses but again, it will only be a few. Anyway,

for the above example, the TransactionLog could have the following line in it:

2/20/2020 6:34pm | INSERT | MK1289 | Navy Suit | Michael Kors | Suit | Mens | 42R | 42R | 200 | 81 | 4 | SuitFactory

The transaction log will be maintained during the execution of your system and will automatically be outputted to an output file (whose name will be specified on the commandLine with a default name that you will choose, in case the user does not specify) upon the completion of the system execution.

You can use the same format for the initial inputted data file.

Hope this helps!

Sincerely,

Professor