COSC 051- Spring 2021 - Project 4

Given: April 8, 2021

Due: April 22; 11:59 PM EDT

Project Goal:

In this project you will change your P3 implementation to Object Oriented programming.

There will not be much difference to the output, but you are going to modify much of how the software works internally. The menu, file format, data validation, and most of the Project #3 features are unchanged. How these features are implemented is significantly changed by adding object-oriented features to the software. Specifically, you shall define a CounterTop class that encapsulates the data and operations.

File Processing: The file format is unchanged from Project #3. Your software shall continue reading and processing lines of data until reaching the end of the input file. After reading each line of data from the file, the software shall perform the same error checking as it did in Project #3. If errors exist, that row of data is simply skipped and none of the values shall be loaded into memory (appended to the vector). Selected values of rows having errors shall still be output to the terminal window followed by a brief notice explaining the error(s) and the file processing shall continue. If there are no errors, the software shall use the data from that row to set the value of each data member of a CounterTop object. Then that CounterTop object shall be appended to a vector of CounterTop objects. As was the case before, all of the values on each row of the data file must be read even if they are not used in calculations or output. After the detailed data for each row and the summary information have been output the menu shall again be displayed along with a prompt for the user to enter their next option.

Data Validation: (no change from previous projects)

Calculations: The actual calculations are unchanged from Project #3. However, where and when these calculations are made is significantly different. In this project, you shall provide CounterTop objects the capability to calculate their own area, raw materials required for fabrication, and cost information. Depending upon your design for Project #3, you may have had duplicate code to make those calculations in multiple functions. Now you shall remove this duplicate code from all of the "stand-alone" functions and encapsulate it within the CounterTop class declaration along with the data necessary for the calculations to be made.

Academic Integrity

This is an individual project and all work must be your own. Refer to the guidelines specified in the *Academic Honesty* section of this course syllabus or contact me if you have any questions.

Include the following comments at the start of your source code file:

```
/*
 * <FileName>.<file extension>
 *
 *  COSC 051
 *  Project#4

 *
 *  Author: <your name>
 *
 *  In accordance with the class policies and Georgetown's
 *  Honor Code, I certify that, with the exception of the
 *  class resources and those items noted below, I have neither
 *  given nor received any assistance on this project.
 *
 *  References not otherwise commented within the program source code.
 *  Note that you should not mention any help from the TAs, the professor,
 *  or any code taken from the class textbooks.
 */
```

Project Submission Details

Remains as was specified in the last project. All files must be uploaded onto the CANVAS by the due day & time.