CS 150 **Lab Assignment 3** **Spring 2016**

Your assignment for this lab, is to write a C++ program based on chapter 2 programming exercise **15,** on page 118 in Malik. You will create an enhanced version of this program. I have provided the problem statement from the textbook below, followed by the additional requirements you must implement for this lab assignment. There are also example source code files provided along with this lab, that contain keys to your solution.

15. To make a profit, a local store marks up the prices of its items by a certain percentage. Write a C++ program that reads the original price of the item sold, the percentage of the marked-up price, and the sales tax rate. The program then outputs the original price of the item, the percentage of the mark-up, the store's selling price of the item, the sales tax rate, the sales tax, and the final price of the item. (The final price of the item is the selling price plus the sales tax.)

Instructions: Read this document completely before you begin work. THEN -read and run the template source code file (**lab03_2016_F_LName.cpp**) and look for comments that are the hints to solve the problem. You should also, refer to the sample output on the following page as you read through the lab assignment.

- Your program will prompt for the user name and ID, and write this information to the output file. (see example output)
- Your program will prompt the user to enter the name of the input file, so you must add code prompting the user to specify the input file name. Your program will read and process the information for one item from the specified input file.
- The output file stream has been declared and initialized already. See the lab template for how it was done, and initialized with the name of the output file. You will have to write code similar in nature for the input file stream. See the example source code programs.
- The data in the sample input files describe one item per file. Each item is described by the name of the item, the original price of the item sold, the percentage of the marked-up price, and the sales tax rate. (see the **example input** files: **item1.txt**, **item2.txt**, **item3.txt**).
- Calculate selling price, sales tax, and final price of the item.
- The program then writes the information and calculated values to the output file, including the original price of the item, the percentage of the mark-up, the store's selling price of the item, the sales tax rate, the sales tax, and the final price of the item.
- The output written to the file **must be formatted as shown in** the **example output**. (hint: see the Movie Tickets Sale program to help with formatting the output correctly – that's what I did). Format the output of decimal numbers to two decimal places.
- Write the output message to the screen as shown, and all other information is written to the output file named: outLab3.txt
- Prompt for the input file name(see example code: ex_GetLine_UserFileName.cpp)
- Format your output exactly as shown in the sample output on the following page, and in the example output file. Hint: See ex_Ch3_MovieTicketsSale.cpp

Update the preliminary comments at the top of the template file with your information. Then fill out the programmer information inside the main function to print on the console. Your Programmer Output should look that shown in the example output on the following page, … but with your information filled in. This information is required on all lab assignments this semester. Save your source code file as **lab03_2016_F_LName.cpp**, replacing F and LName with your name before you submit it on Blackboard – or you will lose points on the lab

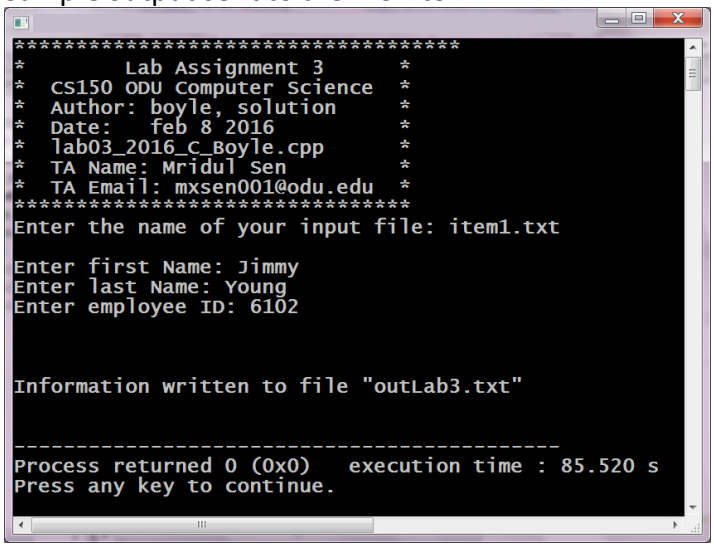
You will lose points for failing to do each or any of the following:

- Fill out the Preliminary Comments.
- Fill out the programmer info.
- Validate the opening of , and properly closing the input file stream properly
- Name your source code solution file properly.

Your program should execute, and run properly to receive full credit. If your program doesn't run, it may not be graded. You may create your own additional input files for testing purposes, however you are not allowed to change the structure of the input files. Do not change the example input files provided.

Submit your properly named source code file on Blackboard, following the instructions of your lab TA.

Sample output sent to the **monitor:**



Sample output sent to the **output file:**

```
Employee: Jimmy Young, ID: 6102
Item: Vinegar, Balsamic 64oz.
- Purchase price:  ..............  $3.45
- Markup percent:  ..............  78.00%
- Selling price: ................  $6.14
- Sales tax rate:  ..............   5.00%
- Total sales tax: ..............  $0.31
- Final sales amt: ..............  $6.45
-------------------------------------------
```

Part B. Source code files for this lab are included in the zip file: The examples are taken from the textbook and should look familiar to you, as they follow the topics from start to finish in Chapter 4.

a. **Create a CodeBlocks project** called testBedChapter4 (on your Z drive on the CS network).
b. Open each of the example source code files in CodeBlocks.
c. Examine the source code of the programs line-by-line. Read all of the comments. Instructions for completing parts of the labs may be contained in the source code and comments of the examples.

Compile and run the programs. In the table below, provide a brief description of what each of the example programs is demonstrating. (use your textbook, and the source code comments to help). You will not submit this part for grading. The solutions will be covered in recitation next week.

File name	description
TheAssociation	
Stringy	
coverizox	
workingForIt	
penalized	
mediumWhat	
SwitcharooEx1	
bugsNobugs1	
bugsNobugs2	
mrSpock	
bugsNobugs3	
forYou	
judge	
floaters	