Programming Assignment #1

Apple Vending Machine

CS 2308 005 Fall 2019

Instructor: Dr. Palacios

Assigned: Thursday, 8/29/2019

Due: Friday, 9/13/2019: upload electronic copy by 11:59 a.m. (Noon)

** This is a team (of 2 people) assignment **

Problem Statement:

Assume that a Vending Machine offers the following Apple products in its menu:

MacBook Air	$1099.00
MacBook Pro	$1299.00
iPad Air	$ 499.00
IPad Pro 11-in	$ 799.00
IPad Pro 12.9-in	$ 999.00
Watch S4	$ 399.00

Write a program that stores the following data about each menu item in a structure called menuItem:

- A description of the menu item
- The price of the menu item
- A count of the number of times the item has been ordered

The program should keep an array of these structures, one per menu item. When the program runs, it should initialize the array using the data above, and 0 for the count.

The program should do the following:

- Show the user the different Apple products offered by the Vending Machine.
- Allow the user to select multiple items from the menu (by number).
- Calculate and print the bill (including sub-total, tax, and total). The tax rate is 8.25%.

Then, it should ask the user to enter:

N to add a new order (repeat the steps above for a new order), or

E to exit.

Once the user selects E, the program should output the total amount of money taken in (the sum of all the orders) and then output the description and count of the item that was ordered the most frequently.

Please see sample output in the file 1output.txt on the TRACS website. Note: your output should look at least as nice as this one (data lined up in columns, formatted to two decimal points, etc).

Your program must include **three functions**:

• one to display the menu (descriptions and prices only),

• one to take the order (it should return the sub-total for the order), and

• one to determine (and return) the index of the item with the highest count (if more than one item has the maximum count, it must return the index of any one of them).

These functions should take an array of menuItem (and perhaps other values) as arguments.

Additional Requirements:

• Your program must compile and run, otherwise you will receive a score of 0.

• Your program must give correct results for any valid input data. It should give an error message if the user enters an incorrect menu item number.

• Please do not use any features of C++ that we have not yet covered in class (use features from Chapters 1-7, 11 only). Do not use classes or vectors!

• Style: See the Style Guidelines document on the TRACS website. Especially pay attention to the comments required for the top of the file and for each function. The grader will deduct points if your program violates the style guidelines.

Submission Logistics:

Name your file **program1_xxxxx.cpp** where xxxxx is your TX State NetID (your txstate.edu email id).

There are two steps to the Submission process:

1. Submit an electronic copy using the Assignments tool on the TRACS website for this class (tracs.txstate.edu).

2. Submit a printout of the source file at the beginning of **the class after the assignment is due**. Please print "CS-2308-005" and your name on top of the front page, and staple the pages if there is more than one page.

For more details, re-read the Submission Policy document on the TRACS website.