**SFWRENG 2MP3 – Programming for Mechatronics**

**Fall 2018**

**Assignment 7: Structures, File Handling**

Note: Weekly course assignments account for 20% of the final course grade. **This assignment is due November 24th, 2018 at 11:59pm.**

**Objectives**

The purpose of this activity is to develop a greater understanding of structures, file handling and their application within the C programming language.

**Tasks**

In order to complete this assignment, you must submit a written report of the C code and output for each of the following questions.

**Question 1a:** Create a structure for items at a grocery store, your structure should include the following information:

* Item name (character array)
* Item quantity (integer)
* Item cost (floating point)

**Question 1b:** Create arrays with your structure to represent the inventory of departments within the store including:

* Produce
* Deli
* Bakery
* Frozen foods

(Assume the maximum number of inventory items is 100 for each array)

**Question 1c:** Create a main menu that asks to user to select one of the following options in a loop:

1. Add an item to inventory
2. Change the quantity of an item in inventory
3. Change the cost of an item in inventory
4. Output inventory to file
5. Exit program

**Question 1d:** If option 1 is selected from the main menu, a sub-menu will ask the user to select from the following:

1. Add item to produce inventory
2. Add item to deli inventory
3. Add item to bakery inventory
4. Add item to frozen food inventory

Create a function additem which will allow the user to add data to the selected department’s array

**Question 1e:** If option 2 is selected from the main menu, a sub-menu will ask the user to select from the following:

1. Change the quantity of an item in the produce inventory
2. Change the quantity of an item in the deli inventory
3. Change the quantity of an item in the bakery inventory
4. Change the quantity of an item in the frozen food inventory

Create a function editquantity which will allow the user to change the quantity of an item within the selected department’s array. The program should list the item names stored in the selected department’s array and allow the user to select the item they wish to edit. The program will accept a new integer from the user to store in the item quantity and return the user to the main menu. If there are no items in the selected department, the user should be informed and returned to the main menu.

**Question 1f:** If option 3 is selected from the main menu, a sub-menu will ask the user to select from the following:

1. Change the cost of an item in the produce inventory
2. Change the cost of an item in the deli inventory
3. Change the cost of an item in the bakery inventory
4. Change the cost of an item in the frozen food inventory

Create a function editcost which will allow the user to change the cost of an item within the selected department’s array. The program should list the item names stored in the selected department’s array and allow the user to select the item they wish to edit. The program will accept a new floating point value from the user to store in the item cost and return the user to the main menu. If there are no items in the selected department, the user should be informed and returned to the main menu.

**Question 1g:** If option 4 is selected all of the data should be written into a file, formatted properly and separated by section headers of the department. For example:

Produce Department Inventory

Example Item, Quantity 7, Cost $4.68

Next Item, Quantity 6, Cost $2.34

Deli Department Inventory

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**Question 1h:** If option 5 is selected the program should end