CS1428 Lab 11: Fall 2020

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Lab Section: Lab 17

Type your name at the top of this sheet. Answer the following questions and turn in this sheet before the due date. You may use the pre-lab, your book, or internet resources to assist you.

Your instructor will be available on Zoom during the usual lab hours to answer questions or in the Discussion section of Canvas outside of those hours.

Visit https://userweb.cs.txstate.edu/~js236/cs1428/c-ides-for-cs1428.html for instruction on setting up a Development Environment (like CodeBlocks) to be able to complete the coding portion.

1. (10 pts) Using C++, create a **struct** called Car, with the attributes: make (**string**), model (**int**), and transmission (**char**).

```
struct Car{
   string make;
   int model;
   char transmission;
};
```

2. (5 pts) For the above structure **Car**, declare an array of **3** structures named **garage**.

```
Car graage [3];
```

3. (5 pts) Identify the errors (There are 5). HINT: some versions of C++ do not allow structs to have arrays without a fixed size as member.

```
structure student
        string name ;
        char 'grade' ;
        int points[ ] ;
}
```

1. Missing ; after final bracket }

2. student needs to be Student

3. Missing open bracket to start

4. Cannot have array within structure

5. 'grade' needs to be grade

4. (50 pts) Modify the provided code to create a program that reads product information into an **Item** structure and calculates inventory information (See Sample Output below). Each **Item** should have a **name**, **cost**, and a **quantity**. Store the items into an array of **Item** structure that can hold 3 elements. The program should output the total number of inventory items, the total cost of all the items, and the cheapest item.

Item data should be stored in a **struct** variable of the type Item, which has three components:

- **name** (string)
- **cost** (double)
- **quantity** (integer)

There are **3** items. Use an array with **3** elements of the data type **Item**.

- Read the item information into the structure array from the console.
- Calculate the total quantity of all 3 items.
- Calculate the total cost of all 3 items.
- Find the index of the cheapest item.

Sample Output (to console):

```
Product #1
Enter name: Backpack
Enter cost: 49.99
Enter quantity: 5
Product #2
Enter name: Sneakers
Enter cost: 82.99
Enter quantity: 10
Product #3
Enter name: Gatorade
Enter cost: 2.50
Enter quantity: 100
Total number of items      : 115
Total value of inventory   : $1329.85
Cheapest item              : Gatorade
```

WRITE your name in the authorship comments at the top of your program.
UPLOAD this pdf with your answers filled in and your source code as lab11.cpp to Canvas.