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CS 162 – Assignment 2

Design

The design of Assignment 2 involves having to classes. One will be an Item class and the other is a List class. The Item class will use a user's input to create an Item object. This object will be used and passed to the List class and stored in an array.

The List class is used to store the items inputted from the Items class. The list will have three functions. One is to add an item to the list. The second will be to remove an item from the list. The third is to show the list to the user.

Table 1 Projected Design

Class Item	Class List
Data: string name; string unit; double quantity; double unitPrice;	Data: int itemAmount = 4; Item *itemArray = newItem[itemAount]

Members:
string getName();
string getUnit();
double getQuanitity();
double getPrice();
	Members:
	void addItem(Item*);
	void removeItem(string*);
	void printList();
	List();

Table 2 Final Outcome

Class Item	Class List
Data: string name; string unit; double quantity; double unitPrice;	Data: int itemAmount; int curItemTotal; Item *itemArray = newItem[itemAount]

Members:
string getName();
string getUnit();
double getQuanitity();
double getPrice();
bool operator==(Item&)
	Members:
	void addItem(Item*);
	void removeItem(string*);
	void printList();
	List();
	bool checkItem(Item&);

User Inputs

User Input - Menu

Choice 1 – Add item
Choice 2 – Remove Item
Choice 3 – Show List
Q to exit

Choice 1 – Add Item

Enter Item Name
Enter Item Unit
Enter Item Qty
Enter Item Price
Item was successfully added
or
The Item is already in the list

Choice 2 – Remove Item

Enter Item name
The Item was removed
or
The item is not found

Test Results

Add Item

Name	Units	Qty	Price	Outcome
apple	bag	6	2.50	No issue. The program will create this object
pear	crate	l	-	The program cannot accept lowercase char L. input validation will ask for a double and clear input flag.
@pple	B@g	-	-	String will accept anything
grapes	bag	5b	-	The program will accept the 5 and ignore the b
apples	Assume apples was already in the list			The program will call the overloaded == operator and will output that apples is already in the list.

Remove Item

Name	Remove	Outcome
Grape	Grape	No issue. The program will remove Grapes from the list
APPLE	apple	The string is case sensitive, will not remove apple.
pear	apple	The program will output pear is not found

Problems

The biggest issue I had was the overloading == operator. Since this was a new technique, I was having a hard time figuring it out. I could not get the correct syntax worked out. As a result, I kept scouring the book and looking through examples on YouTube to try and understand the syntax. With enough trials, and examples, I was finally able to make the function work out.

I tried to keep everything in my List files, but I decided to move the overload to the Items files and then create a function in my lists that would call the operator function.

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Final Thoughts

I decided to add the totals up in my printList function because I knew I would already be looping through the array to output the results. By doing this, I am able to capture the prices for only everything in the list. Otherwise, trying to add prices and keeping them up to date while adding and removing seemed to be more of a hassle.