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CS162
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Assignment 2 Design Document

Design:

For assignment two I will be creating two classes: Item and List. The Item class will have 4 variables (item name, unit (i.e. can, box, pounds, or ounces), number to buy, and unit price). I would only need one constructor because all of the information is required in order to create the item. The item name and unit will be a string variable. The number to buy will be an integer variable since we need whole numbers, cant purchase half a can. The unit price variable will be a double to account for dollars and cents. There will also be an extendedPrice function that will return the number to buy times the unit price. This class does not need a print function.

The list class will create an array of 100 Item objects. There will be an addItem function that will prompts the user for all of the item information, using an overloaded == operator, I will determine if the item was already added, if not it will create an item and add it to an array. Then there will be removeItem function that will prompt the user for the item name and pass the string to the parameter that will then find the item object and remove it from the array. Lastly there will be a display function that will output all of the items on the list and the total price. We do not need a print function because the display function takes care of that for us.

Test:

For my test plan since we are assuming the user will enter in correct inputs. I tested to make sure all the menu selections actually went to the correct screen and then looped in the correct places so the list can be built upon. To test the main functions, I added several items to my list such as :

- apple, per, 5, and 1.99
- cake, slice, 3, and .99
- soup, can, 9, and .89
- apple pie, slice, 4, 2.99

I made sure everything printed out correctly and the total was correct using the display function. Then I tried adding a duplicated apple and that was rejected with a message saying to try again. I tried again for cake with the same results. Then I tried my delete function but entering apple. After I called display and it showed that the apple was removed from the list and calculations. I removed cake and the same occurred. My program works exactly how it should be without any issues.

Fixes:

I ended up needing two constructors for my Item class so that when my list initializes the array they will be filled with empty values. I realized the simplest solution to be able to remove items from the calculation and print out would be to set the values back to default ("" , "", 0, 0.0) and for the display function, if the item name is blank than it will skip that section of the array.