Aimee Valladares

4/24/2019

Bonus Project

**Input:**

Before the first input prompt there should be preceded by a menu that displays all the types of beverages are available, the selection pad for each option, and the price of each drink as shown below.

Types of Soda:

1: Sprite $1.25

2: Pepsi $1.25

3: Coca-Cola $1.50

4: Brisk Iced Tea $1.50

5:Gatorade $2.00

The first input prompt asks the user to input the number of coins (specifically quarters only) for payment. The final prompt then asks the user to input select the item of their choice with the designated selection number.

**Output:**

The output would display the status of the transaction, specify what item was purchased, the balance of the deposited fund, the remaining amount of drinks from the sale. If insufficient funds or an item was out of stock, then the corresponding error messages would appear and the user would have to go through the process again.

**Description of algorithm and data structure:**

Before creating the Vending Machine class, the Drink class, or the main() first assign each beverage to a selection pad number. For the Vending Machine Base Class, the private data fields: int coinAmount, map <int, int> sodaType, and map <int, int> item count is created. Then create the public constructors VendingMachine() and ~VendingMachine. Finally, create the accessor and the mutator functions for the private data fields, a function for displaying errors, and a function to print out the menu containing the item, designated selection number, and price. The VendingMachine() constructor connects the soda type with the price (i.e. the number of quarters needed). The getter function, maxItemCount(), returns the number of items currently in the machine. While the getter function, getSodaType(), returns the item selected. Finally, the getter function, getCoinAmount(), returns the amount of coins entered while the corresponding mutator function, setCoinAmount(), adds the total amount.

For the Drink class, the private data fields: int item, int price, map <int, int> item\_count, and map <int, int> type are established. The public Drink() constructor and the functions, displayCoinAmount(), inputQuarter(), selectionPad(), addCoins(), and transactionStatus(bool) are established. The function addCoins() creates a user prompt for the user to input coins. The function displayCoinAmount() recalls the coin amount. The function transactionStatus(bool status) uses an if statement to print out the transaction status, an if statement to determine the print out statement for the item selected, displays the current balance amount, and the remaining number of items. The function inputQuarter() helps determine whether the number of coins inputted is accepted. Finally, the function selectionPad() prompts the user to select an item with the designated selection number and determine the necessary error messages for possible insufficient funds or items out of stock.

Finally, for the main() function the object soda is established for the Drink class and the object soda will recall the showItems() function and the selectionPad() function.

**UML Diagram:**