Module 1 Capstone - Vending Machine Software

You've been asked to develop an application for the newest vending machine distributor, Umbrella Corp. They've released a new vending machine (Vendo-Matic 800) that is integrated with everyone's bank accounts allowing customers to purchase products right from their computers for convenience sake. The requirements for the application are listed below:

1. The vending machine needs to dispense beverages, candy, chips, and gum. Each vending machine item has a Name and a Price.

2. A main menu should display when the software is run presenting the following options:

```
(1) Display Vending Machine Items
(2) Purchase
(3) Exit
```

3. Vending machine inventory is stocked via an input file when the vending machine is started.

4. The vending machine is automatically restocked each time the application runs.

5. When the customer selects (1) Display Vending Machine Items they are presented a list of all items in the vending machine with its quantity remaining.

    - Each vending machine product has a slot identifier and a purchase price.
    - Each slot in the vending machine has enough room for 5 of that product.
    - Every product is initially stocked to the maximum amount.
    - A product which has run out should indicate it is SOLD OUT.

6. When the customer selects (2) Purchase they are guided through the purchasing process menu:

```
(1) Feed Money
(2) Select Product
(3) Finish Transaction

Current Money Provided: $2.00
```

7. The purchase process flow is as follows
    - Selecting (1) Feed Money A customer can repeatedly feed money into the machine in valid whole dollar amounts (e.g. $1, $2, $5, $10).
        - The Current Money Provided indicates how much money the customer has fed into the machine.
    - Selecting (2) Select Product allows the customer to select a product to purchase.
        - Show the list of products available and allow the customer to enter to code to select an item
        - If the product code does not exist, the customer is informed and returned to the Purchase menu.
        - If a product is sold out, the customer is informed and returned to the Purchase menu.
        - If a valid product is selected it is dispensed to the customer.
        - Dispensing an item will print the item name, cost and the money remaining. Dispensing will also return a message.
            1. All chip items will print “Crunch Crunch, Yum!”
            2. All candy items will print “Munch Munch, Yum!”
            3. All drink items will print “Glug Glug, Yum!”
            4. All gum items will print “Chew Chew, Yum!”
        - After the product is dispensed, the machine should update its balance accordingly and return the customer to the Purchase menu.
    - Selecting (3) Finish Transaction allows the customer to complete the transaction and receive any remaining change back.
        - The customer’s money is returned using nickels, dimes, and quarters (using the smallest amount of coins possible).
        - The machine’s current balance should be updated to $0 remaining.
    - After the purchase is complete the user is returned to the “Main” menu to continue using the vending machine

8. All purchases must be audited to prevent theft from the vending machine
    - a. Each purchase should generate a line in a file called Log.txt
    - b. The audit entry should be in the format:

```
01/01/2016 12:00:00 PM FEED MONEY: $5.00 $5.00
01/01/2016 12:00:15 PM FEED MONEY: $5.00 $10.00
01/01/2016 12:00:20 PM Crunchie B4 $10.00 $8.50
01/01/2016 12:01:25 PM Cowtales B2 $8.50 $7.50
01/01/2016 12:01:35 PM GIVE CHANGE: $7.50 $0.00
```

9. Limit Console console input and output to as few classes as possible. Consider using the Menu class provided for all you menu/choice requirements.
10. Sales Report
    - Provide a “Hidden” menu option on the main menu (“4”) that writes to a sales report that show the total sales since the machine was started. The name of the file should include the date and time so that each sales report is uniquely named.
    - An example of the output format is provided below.
11. Provide unit tests demonstrating your code works correctly.

Vending Machine Data File

The input file that stocks the vending machine products is a pipe | delimited file. Each line is a separate product in the file and follows the below format

Column Name	Description
Slot Location	The slot location in the vending machine where the product is set.
Product Name	The display name of the vending machine product.
Price	The purchase price for the product.
Type	The product type for this row.

An example input file has been provided with your repository. Here is a sampling of it's contents:

```
A1|Potato Crisps|3.05|Chip
A2|Stackers|1.45|Chip
B1|Moonpie|1.80|Candy
C1|Cola|1.25|Drink
D1|U-Chews|0.85|Gum
D2|Little League Chew|0.95|Gum
```

Sales Report

The output sales report file is also pipe delimited for consistency. Each line is a separate product with the number of sales for the applicable product. At the end of the report is a blank line followed by **TOTAL SALES** dollar amount indicating the gross sales from the vending machine.

Sample Sales Report Using Trivial Data (ie. the total may not match sales indicated)

```
Potato Crisps|1
Stackers|3
Grain Waves|0
Cloud Popcorn|5
Moonpie|3
Cowtales|2
Wonka Bar|1
Crunchie|3
Skor|4
Cola|5
Dr. Salt|4
Mountain Melter|5
Heavy|0
Diet Cola|4
U-Chews|4
Little League Chew|2
Chiclets|0
Triplemint|0

Total Sales: $54.95
```