CST 238 – Fall 2013
Project 1
Due: 10/13/2013 (11:55 PM) – Due date is Sunday, not Friday.

In this project, you will develop a class called **`VendingMachine`** that simulates an imaginary vending machine in the CSUMB campus. A user can buy a bottle of water ($1.50), a bottle of coffee ($2.00), a chip ($1.00), and a chocolate bar ($2.50) using the machine. The user can select several item(s) if the items are available in the machine. Furthermore, the user can de-select item(s) that are already selected. After finishing the selection of item(s), the user should pay for the items with either a debit card (Valid PIN: 7777) or a credit card (Valid ZIP code: 93955). Note that an administrator of the machine can reset and refill the machine.

Read the following demo program and its sample run very carefully and identify data members and function members of the class to run the demo program.

Demo Program: The following code presents a demo program that uses the **`VendingMachine`** class.

```
#include <iostream>
using namespace std;
#include "VendingMachine.h"

int main()
{
    VendingMachine machine1;
    VendingMachine machine2 (200, "Library");

    cout << "===== Welcome to CSUMB Vending Machine =====";
    cout << machine1.display();  // Display the ID number and name of machine1 object.
    cout << machine2.display();  // Display the ID number and name of machine2 object.

    machine1.setNumber(100);
    machine1.setName("MLC104");

    machine1.reset(5, 7, 0, 5);  // A machine admin resets the machine(= reset items).
    machine1.addItems(0, 0, 3, 5); // A machine admin adds items to the machine.

    cout << endl;
    machine1.status();   // status() function displays current status of the machine

    cout << endl;
    machine1.displayMenu();

    machine1.selectItem();   // A user can select an item.
                             // For example, a user can select 2 bottles of coffee.

    cout << endl;
    machine1.selectItem();   // A user selects another item.

    cout << endl;
    machine1.selectItem();

    cout << endl;
    machine1.deselect(1);  // A buyer can de-select the item.
                           // In this example, a user de-selects the item number one.

    cout << endl;
    machine1.selectItem();  // If a user selects more items than currently available,
                            // the machine will display a warning message.
```

```
    cout << endl;
    if(machine1.payment() == true)   // Pay with either a credit card or a debit card.
    {
        machine1.displayReceipt();
    }
    else
    {
        // Note that if a user entered incorrect payment information,
        // all selections should be deselected.
        cout << "Invalid payment. All selections are cancelled.";
    }

    cout << endl;
    machine1.status();

    cout << "===== Thank you! =====";

    return 0;
}
```

Sample Run of the Demo Program: The following presents a sample result of the demo program.

```
===== Welcome to CSUMB Vending Machine =====
Number: 0, Name: UNKNOWN
Number: 200, Name: Library


Machine Status
    Number: 100, Name: MLC104
    Sold: Water: 0 / Regular Coffee: 0 / Sun Chip: 0 / Chocolate Bar: 0
    Remaining: Water: 5 / Regular Coffee: 7 / Sun Chip: 3 / Chocolate Bar: 10
    Total Earning: $0.00


===== Vending Machine Menu =====
   1.  Water.............$1.50
   2.  Regular Coffee...$2.00
   3.  Sun Chip.........$1.00
   4.  Chocolate Bar....$2.50
Select Item: 2
How many do you want to buy? 2
You selected Regular Coffee (2)

Select Item: 1
How many do you want to buy? 1
You selected Water (1)

Select Item: 1
How many do you want to buy? 3
You selected Water (3)
```

```
You de-selected Water (4)

Select Item: 3
How many do you want to buy? 5
You selected Sun Chip (5) – Sorry. We don't have enough Sun Chip.

Payment Option – Debit (1)/Credit (2): 1
Enter PIN: 7777
This is your receipt:
    Regular Coffee: $2.00 X 2 = $4.00
    Tax (10.0%): $0.40
    Total: $4.40

Machine Status
    Number: 100, Name: MLC104
    Sold: Water: 0 / Regular Coffee: 2 / Sun Chip: 0 / Chocolate Bar: 0
    Remaining: Water: 5 / Regular Coffee: 5 / Sun Chip: 3 / Chocolate Bar: 10
    Total Earning So Far: $4.40
===== Thank you! =====
```

How to turn in?

Submit your source programs (**VendingMachine.h** and **VendingMachine.cpp**) on the iLearn.