

**Programming Assignment 3****Due Date : Wednesday February 24<sup>th</sup> – 2016 @****3:30 pm for section 2 & 5:00 pm for section 3**

---

One of common places to buy candy , chips .. etc. is from a vending machine. One particular vending machine sells candies, chips, gums , and cookies. You have been asked to write a C++ program for this vending machine.

The program should do the following:

1. Show the customer the different products sold by the vending machine.
2. Let the customer make the selection.
3. Show the customer the cost of the item selected.
4. Accept money from the customer.
5. Release the item.

The machine has two main components: a built-in cash register and several dispensers to hold and release the products.

Define class Cash Register in C++ with the following descriptions :

integer variable to store cash on hand as a private member.

**Define the following as public members:**

A default constructor that sets the cash in the register to 500.

A constructor that sets the cash in the register to a specific amount.

A function that returns value of cash on hand

A function that receives the amount deposited by the customer and update the amount in the register

Define class Dispenser Type in C++ with the following descriptions :

Define integer variable indicating number of items available as a private member.

Define integer variable to store the cost as a private member.

**Define the following as public members:**

A default constructor that sets the cost and number of items in the dispenser to 50 each.

A constructor that sets the cost and number of items in the dispenser to the values specified by the user.

A function to return the value of number of items.

A function to return the value of cost.

A function to reduce the number of items by 1.

When the program executes, it must do the following:

1. Show the different products sold by the vending machine.
2. Show how to select a particular product.

Once the user has made the appropriate selection, the vending machine must act accordingly. If the user has opted to buy a product and that product is available, the vending machine should show the cost of the product and ask the user to deposit the money. If the amount deposited is at least the cost of the item, the vending machine should sell the item and display an appropriate message.

## **Style Guidelines :**

At the beginning of your program ( and **before** the #include statement ), include the following :

**Header comments** (file documentation block) should be at the top of each file and should contain: Author / s, Due Date, Assignment Number, Course number and section, Instructor, and a brief description of the purpose of the code in the file. For example :

```
//      Roster Number / s :      xxxxxxxxx
//
//      Author / s : (Your name here!!)
//      Due Date :
//      Programming Assignment Number 3
//      Spring 2016 - CS 3358 - Your Section Number
//
//      Instructor: Husain Gholoom.
//
//      <Brief description of the purpose of the program>
```

### **Variable names :**

- Must be meaningful.
- The initial letter should be lowercase, following words should be capitalized, no other caps or punctuation ( i.e. `weightInPounds` ).
- Each variable must be declared on a separate line with a descriptive comment.

### **Named constants :**

- Use for most numeric literals.
- All capitals with underscores ( i.e. `TX_STATE_SALES_TAX` )
- Should occur at top of function, or global (only if necessary)

**Line length** of source code should be no longer than 80 characters (no wrapping of lines).

### **Indentation :**

- Use 2-4 spaces (but be consistent throughout your program).
- Indent blocks, within blocks, etc.
- Use blank lines to separate sections.

## Comments for variables :

All variable definitions should be commented as follows:

```
int  gender;    // integer value for the gender,
                // 1 = Male , 2 = Female ,
```

## Rules :

1. Your program **must compile** and run. Must implement a validation when required.
2. Your program must be **documented according the style above** . See the sample programming style guideline provided.
3. You must use the appropriate libraries in writing this program.
4. Must properly format the output as it is shown on the sample run below. Replace my name with your name / S . Write **your last name /S instead of my name.**
5. You must name your program as follows :
  - **cashReg.h** as the header file name
  - **cashReg .cpp** as the implementation file name for the class cashReg.h
  - **cashRegDriver .cpp** as the user program that uses the class cashReg

Compress the above 3 files and name the compressed file as

- **LastName\_FirstName\_F2015\_PG3.zip**

Where LastName is your Last Name and FirstName is your First Name. For example , the file name should look something like : **Gholoom\_Husain\_F2015\_PG3.zip ( not .cbp )**

6. You must upload your programs no later than the starting of class time on the due date. **No late assignments will be accepted.**

**To upload your program** , go to the CS department's website, click on resources , then select homework upload.

7. You must **also** turn in hard copy of your source code no later than **starting time of the class** on the due date . You can take the program to the computer science department and hand it to the front desk personal (Comal 211 ) before the deadline. Make sure that the front office stamps the program. Make sure that include the date and time. Finally ,make sure that they place the program in my mailbox.
8. **Violating any item from the above rules will result in Grade ZERO for the entire assignment. NO EXCEPTIONS.**

## Sample Run

```
*** Welcome to Husain Gholoom's Vending Machine ***
```

```
    Select One of the following
```

```
    1 for Candy
    2 for Chips
    3 for Gum
    4 for Cookies
    9 to exit
```

```
10
```

```
Invalid selection.
```

```
*** Welcome to Husain Gholoom's Vending Machine ***
```

```
    Select One of the following
```

```
    1 for Candy
    2 for Chips
    3 for Gum
    4 for Cookies
    9 to exit
```

```
3
```

```
Please deposit 45 cents
```

```
45
```

```
Collect your item at the bottom and enjoy.
```

```
*****
```

```
*** Welcome to Husain Gholoom's Vending Machine ***
```

```
    Select One of the following
```

```
    1 for Candy
    2 for Chips
    3 for Gum
    4 for Cookies
    9 to exit
```

```
3
```

```
Please deposit 45 cents
```

```
50
```

```
Collect your item at the bottom and enjoy.
```

```
Collect your change 5
```

```
*****
```

```
*** Welcome to Husain Gholoom's Vending Machine ***
```

```
    Select One of the following
```

```
    1 for Candy
    2 for Chips
    3 for Gum
    4 for Cookies
    9 to exit
```

```
3
```

```
Sorry, this item is sold out.
```

```
*****
```

```
*** Welcome to Husain Gholoom's Vending Machine ***
```

```
    Select One of the following
```

```
    1 for Candy
    2 for Chips
    3 for Gum
    4 for Cookies
    9 to exit
```

```
1
```

```
Please deposit 50 cents
```

```
30
```

```
Please deposit another 20 cents
```

```
10
```

```
The amount is not enough. Collect what you deposited.
```

```
*****
```

```
*** Welcome to Husain Gholoom's Vending Machine ***
```

```
    Select One of the following
```

```
    1 for Candy
    2 for Chips
    3 for Gum
    4 for Cookies
    9 to exit
```

```
1
```

```
Please deposit 50 cents
```

```
30
```

```
Please deposit another 20 cents
```

```
20
```

```
Collect your item at the bottom and enjoy.
```

```
*****
```

\*\*\* Welcome to Husain Gholoom's Vending Machine \*\*\*

Select One of the following

- 1 for Candy
- 2 for Chips
- 3 for Gum
- 4 for Cookies
- 9 to exit

9

\*\*\* Thank you for visiting Husain Gholoom's Vending Machine \*\*\*