CSCI 301 Computer Science II Summer 2023

Assignment 2 E-commerce

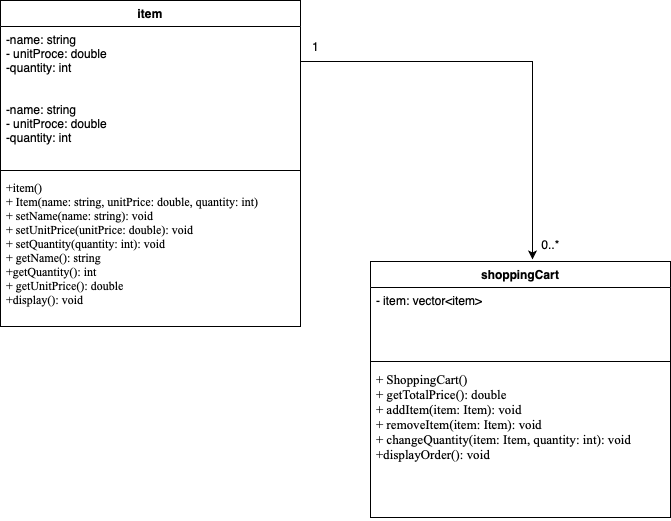
Due Date: 11:50 pm on July 3, Monday

## 

## 1 Introduction:

This program is an online shopping cart that allows users to add items followed by the price and the quantity of the item. The item can be added multiple times as the user can decide to buy the same item more than once. This program also allows users to remove the item from the cart or modify its quantity. At the end, the program will display all the selected items with their prices and their quantities. It will also show the total price of the selected items at the bottom of the list.

## 2 The UML Class diagram



3 Code list:

/\*\*

\* Problem: When shopping online, you select items and add them to a shopping cart. Duplicate items

are permitted in a shopping cart, as you can purchase multiples of the same item. You

also can remove an item from a shopping cart, if you change your mind about buying it.

The shopping cart can show its current contents with their prices and the total cost of

these items. Design the ADT item and shopping cart.

\* startID: el8524jv

\* Name:Algassimou Diallo

\* Due: 07/03/2023

\* Instructor: Meichsner Jie

\* Comments:

\*/

#ifndef ITEM\_H

#define ITEM\_H

#include <iostream>

#include <string>

#include <vector>

#include <iomanip>

/\*\*

\* Represents an item in the shopping center.

\*/

class Item {

private:

std::string name;

double unitPrice;

int quantity;

public:

/\*\*

\* Constructor with parameters.

\* @param itemName Name of the item

\* @param itemPrice Unit price of the item

\* @param itemQuantity Quantity of the item

\*/

Item(const std::string& itemName, double itemPrice, int itemQuantity)

: name(itemName), unitPrice(itemPrice), quantity(itemQuantity) {}

std::string getName() const { return name; }

double getUnitPrice() const { return unitPrice; }

int getQuantity() const { return quantity; }

};

#endif

/\*\*

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are permitted in a shopping cart, as you can purchase multiples of the same item. You

also can remove an item from a shopping cart, if you change your mind about buying it.

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\* startID: el8524jv

\* Name:Algassimou Diallo

\* Due: 07/03/2023

\* Instructor: Meichsner Jie

\* Comments:

\*/

#ifndef SHORPCART\_H

#define SHORPCART\_H

#include <iomanip>

#include <iostream>

#include <string>

#include <vector>

#include "item.h"

/\*\*

\* Represents a shopping cart.

\*/

class ShoppingCart {

private:

std::vector<Item> items;

public:

/\*\*

\* Add an item to the shopping cart.

\* @param item The item to add

\*/

void addItem(const Item& item) {

items.push\_back(item);

}

/\*\*

\* Remove an item from the shopping cart.

\* @param item The item to remove

\*/

void removeItem(const Item& item) {

for (auto i = items.begin(); i != items.end(); ++i) {

if (i->getName() == item.getName() && i->getUnitPrice() == item.getUnitPrice()) {

items.erase(i);

break;

}

}

}

/\*\*

\* Change the quantity of an item in the shopping cart.

\* @param item The item to modify

\* @param newQuantity The new quantity

\*/

void changeQuantity(const Item& item, int newQuantity) {

for (auto it : items) {

if (it.getName() == item.getName() && it.getUnitPrice() == item.getUnitPrice()) {

it = Item(it.getName(), it.getUnitPrice(), newQuantity);

break;

}

}

}

/\*\*

\* Get the total charge for the items in the shopping cart.

\* @return The total charge

\*/

double getTotalCharge() const {

double total = 0.0;

for (const auto& item : items) {

total += item.getUnitPrice() \* item.getQuantity();

}

return total;

}

/\*\*

\* Display the order summary.

\*/

void displayOrder() const {

std::cout << "Here is your order:" << std::endl;

std::cout << "-------------------------------------------------" << std::endl;

std::cout << "Name" << std::setw(12) << "Unit\_Price" << std::setw(9) << "Quantity" << std::endl;

for (const auto& item : items) {

std::cout << item.getName() << std::setw(6) << "$" << item.getUnitPrice() << std::setw(9) << item.getQuantity() << std::endl;

}

std::cout << "The total charge is $" << std::fixed << std::setprecision(2) << getTotalCharge() << std::endl;

std::cout << "--------------------------------------------------" << std::endl;

}

};

#endif

/\*\*

\* problem: When shopping online, you select items and add them to a shopping cart. Duplicate items

are permitted in a shopping cart, as you can purchase multiples of the same item. You

also can remove an item from a shopping cart, if you change your mind about buying it.

The shopping cart can show its current contents with their prices and the total cost of

these items. Design the ADT item and shopping cart.

\* startID: el8524jv

\* Name:Algassimou Diallo

\* Due: 07/03/2023

\* Instructor: Meichsner Jie

\* Comments:

\*/

#include <iostream>

#include <iomanip>

#include <vector>

#include "item.h"

#include "shoppingCart.h"

int main() {

std::cout << "Welcome to XXX SHOPPING CENTER." << std::endl;

ShoppingCart cart;

char continueShopping = 'y';

while (continueShopping == 'y') {

std::string name;

double unitPrice;

int quantity;

std::cout << "Enter the item you selected as the following order:" << std::endl;

std::cout << "name unitPrice quantity" << std::endl;

std::cin >> name >> unitPrice >> quantity;

Item item(name, unitPrice, quantity);

cart.addItem(item);

std::cout << "Want to continue y/n--> ";

std::cin >> continueShopping;

}

cart.displayOrder();

char modifyOrder = 'y';

while (modifyOrder == 'y') {

std::cout << "Want to modify your order? y/n--> ";

std::cin >> modifyOrder;

if (modifyOrder == 'y') {

int option;

std::cout << "What do you want? Enter 1: add 2: remove 3: change quantity" << std::endl;

std::cin >> option;

std::string name;

double unitPrice;

int quantity;

if (option == 1) {

std::cout << "Enter the item to add as the following order:" << std::endl;

std::cout << "name unitPrice quantity" << std::endl;

std::cin >> name >> unitPrice >> quantity;

Item item(name, unitPrice, quantity);

cart.addItem(item);

std::cout << "The item has been added." << std::endl;

}

else if (option == 2) {

std::cout << "Enter the item to remove as the following order:" << std::endl;

std::cout << "name unitPrice quantity" << std::endl;

std::cin >> name >> unitPrice >> quantity;

Item item(name, unitPrice, quantity);

cart.removeItem(item);

std::cout << "The item has been removed." << std::endl;

}

else if (option == 3) {

std::cout << "Enter the item to change as the following order:" << std::endl;

std::cout << "name unitPrice quantity" << std::endl;

std::cin >> name >> unitPrice >> quantity;

Item item(name, unitPrice, quantity);

int newQuantity;

std::cout << "Enter a new quantity --> ";

std::cin >> newQuantity;

cart.changeQuantity(item, newQuantity);

std::cout << "The quantity has been modified." << std::endl;

}

}

}

cart.displayOrder();

std::cout << "Thanks for shopping in XXX SHOPPING CENTER." << std::endl;

return 0;

}

## 4 User Document

When shopping online, you select items and add them to a shopping cart. Duplicate items are permitted in a shopping cart, as you can purchase multiples of the same item. You also can remove an item from a shopping cart, if you change your mind about buying it. The shopping cart can show its current contents with their prices and the total cost of these items. Design the ADT item and shopping cart.

The file of this project is located in the centOS folder: el8524jv/csci301/project2

To compile this program please run the command:

Once the program is compiled and running, it will ask the user to an input as follow:

—-----------------------------------------------------------------------------------------------------------

Enter the item you selected as the following order:

name unitPrice quantity

—-----------------------------------------------------------------------------------------------------------

Users will enter the name, the price and quantity of the item by hitting the space key between them.

Users will be asked if they want to continue adding more items in the shopping cart. Please type “y” yes or “n” for no

Depending on the above answer, the program will either display the entered items in the cart or ask for more items.

The program will also ask if users want to modify the order. Entering “y” yes will lead to a menu where users are required to enter 1 to add, 2 to remove 3 to change the quantity of an existing item.

To add a new item, you must repeat the same process as before by entering the name, the price and quantity of the item by space between them.

To remove an item from the cart, you must enter the name, the price and the quantity of the item.

To change the quantity of the item, you must enter the name, the price and the existing quantity first. Then, the program will ask to enter the new quantity.

5 Tests:

Below are the scripts that has been recorded for this program

Test1 :

This test is for adding items into the shopping cart and displaying them as a list by showing their prices, their quantities and the total price.

—-----------------------------------------------------------------------------------------------------

Script started on Mon Jul 3 20:18:12 2023

[1m[7m%[27m[1m[0m

[0m[27m[24m[Jalgassimou@Algassimous-MacBook-Pro project2 % [K[?2004h./a.out ccd "/Volumes/academic data/project2/" && g++ shoppinCart.cpp -o s

[Kh

hoppinCart && "/Volumes/academic data/project2/"shoppinCart[?2004l

Welcome to XXX SHOPPING CENTER.

Enter the item you selected as the following order:

name unitPrice quantity

peb n 34 2

Want to continue y/n--> b n

Here is your order:

-------------------------------------------------

Name Unit\_Price Quantity

pen $34 2

The total charge is $68.00

--------------------------------------------------

Want to modify your order? y/n--> n

Here is your order:

-------------------------------------------------

Name Unit\_Price Quantity

pen $34.00 2

The total charge is $68.00

--------------------------------------------------

Thanks for shopping in XXX SHOPPING CENTER.

[1m[7m%[27m[1m[0m

[0m[27m[24m[Jalgassimou@Algassimous-MacBook-Pro project2 % [K[?2004h[?2004l

Script done on Mon Jul 3 20:19:01 2023

Test2

This is testing option 1 which is adding new items into the shopping car.

—-----------------------------------------------------------------------------------------------------

Script started on Mon Jul 3 20:24:45 2023

[1m[7m%[27m[1m[0m

[0m[27m[24m[Jalgassimou@Algassimous-MacBook-Pro project2 % [K[?2004h../a.out[?2004l

Welcome to XXX SHOPPING CENTER.

Enter the item you selected as the following order:

name unitPrice quantity

pen 23 1

Want to continue y/n--> y

Enter the item you selected as the following order:

name unitPrice quantity

dog 45 1

Want to continue y/n--> y

Enter the item you selected as the following order:

name unitPrice quantity

cat 4 2

Want to continue y/n--> y

Enter the item you selected as the following order:

name unitPrice quantity

car 33 1

Want to continue y/n--> n

Here is your order:

-------------------------------------------------

Name Unit\_Price Quantity

pen $23 1

dog $45 1

cat $4 2

car $33 1

The total charge is $109.00

--------------------------------------------------

Want to modify your order? y/n--> y

What do you want? Enter 1: add 2: remove 3: change quantity

1

Enter the item to add as the following order:

name unitPrice quantity

bottle 4 1

The item has been added.

Want to modify your order? y/n--> n

Here is your order:

-------------------------------------------------

Name Unit\_Price Quantity

pen $23.00 1

dog $45.00 1

cat $4.00 2

car $33.00 1

bottle $4.00 1

The total charge is $113.00

--------------------------------------------------

Thanks for shopping in XXX SHOPPING CENTER.

[1m[7m%[27m[1m[0m

[0m[27m[24m[Jalgassimou@Algassimous-MacBook-Pro project2 % [K[?2004h[?2004l

Script done on Mon Jul 3 20:26:14 2023

Test3

This is testing the remove option of the shopping cart.

—-----------------------------------------------------------------------------------------------------

Script started on Mon Jul 3 20:27:15 2023

[1m[7m%[27m[1m[0m

[0m[27m[24m[Jalgassimou@Algassimous-MacBook-Pro project2 % [K[?2004h../a.out[?2004l

Welcome to XXX SHOPPING CENTER.

Enter the item you selected as the following order:

name unitPrice quantity

frog 2 1

Want to continue y/n--> y

Enter the item you selected as the following order:

name unitPrice quantity

pencil 3 1

Want to continue y/n--> y

Enter the item you selected as the following order:

name unitPrice quantity

man 23 2

Want to continue y/n--> n

Here is your order:

-------------------------------------------------

Name Unit\_Price Quantity

frog $2 1

pencil $3 1

man $23 2

The total charge is $51.00

--------------------------------------------------

Want to modify your order? y/n--> y

What do you want? Enter 1: add 2: remove 3: change quantity

2

Enter the item to remove as the following order:

name unitPrice quantity

man 23 2

The item has been removed.

Want to modify your order? y/n--> n

Here is your order:

-------------------------------------------------

Name Unit\_Price Quantity

frog $2.00 1

pencil $3.00 1

The total charge is $5.00

--------------------------------------------------

Thanks for shopping in XXX SHOPPING CENTER.

[1m[7m%[27m[1m[0m

[0m[27m[24m[Jalgassimou@Algassimous-MacBook-Pro project2 % [K[?2004h[?2004l

Script done on Mon Jul 3 20:29:01 2023

Test 4

This is testing the option 3 which updates the quantity of the item.

—-----------------------------------------------------------------------------------------------------

Script started on Mon Jul 3 20:32:06 2023

[1m[7m%[27m[1m[0m

[0m[27m[24m[Jalgassimou@Algassimous-MacBook-Pro project2 % [K[?2004h./a.out[?2004l

Welcome to XXX SHOPPING CENTER.

Enter the item you selected as the following order:

name unitPrice quantity

pen 34 1

Want to continue y/n--> y

Enter the item you selected as the following order:

name unitPrice quantity

dog 3 1

Want to continue y/n--> y

Enter the item you selected as the following order:

name unitPrice quantity

cat 34 1

Want to continue y/n--> y

Enter the item you selected as the following order:

name unitPrice quantity

car 34 2

Want to continue y/n--> n

Here is your order:

-------------------------------------------------

Name Unit\_Price Quantity

pen $34 1

dog $3 1

cat $34 1

car $34 2

The total charge is $139.00

--------------------------------------------------

Want to modify your order? y/n--> y

What do you want? Enter 1: add 2: remove 3: change quantity

3

Enter the item to change as the following order:

name unitPrice quantity

dog 3 1

Enter a new quantity --> 2

The quantity has been modified.

Want to modify your order? y/n--> n

Here is your order:

-------------------------------------------------

Name Unit\_Price Quantity

pen $34.00 1

dog $3.00 2

cat $34.00 1

car $34.00 2

The total charge is $139.00

--------------------------------------------------

Thanks for shopping in XXX SHOPPING CENTER.

[1m[7m%[27m[1m[0m

[0m[27m[24m[Jalgassimou@Algassimous-MacBook-Pro project2 % [K[?2004h

6 Summary:

This program was built in VScode on my local computer. All the program is running and responding as intended. However, it is failing the tests on the SCSU centOS machine. After some debugging, I found that the program is failing on the centOS due to some differences on the C++ versions. Due to time shortage, I could not fix this bug and just ran the test from my local computer.