FleaBay with Overloaded Operators

**Due Time:** 23.59, 7 November 2015 **Earnings:** 9% of your final grade

***NOTE: The code in this assignment must be your own work. It must not be code taken from another student or written for you by someone else, even if you give a reference to the person you got it from (attribution); if it is not entirely your own work it will be treated as plagiarism and given a fail mark, or less.***

**Purpose:** You are to write the code for a version of the FleaBay assignment that moves to data abstraction using copy constructors and overloaded operators in C++. The operation is the same as assignment 1. It allows the user to register with an id and password and enter items for sale together with their prices. Part of the code (minus the usual headers) is shown on the next page and provided online as a .txt file. You **MUST** use this code **without modification (not a single character changed): no code added or removed, no defines, no macros and no statics**. Your task is to implement, in the .cpp source code files, only the class member functions that are declared and also the global insertion operators. The code in your project is in the 7 files Item.h, Account.h, FleaBay.h, Item.cpp, Account.cpp, FleaBay.cpp and ass1.cpp. You submit only Item.cpp, Account.cpp and FleaBay.cpp

In this assignment, when the application is running the user can

* Register with an id and password
* Add items and their prices to each account
* Change the password of an account
* Print all the registered users together with their items
* Print one particular user together with items
* Quit the application and release all existing dynamically allocated memory.

An example of the output of the running application is given at the end. Yours must look identical.

Note the following:

* The FleaBay object has an array of pointers to Account objects. When a new Account is added the array of pointers is increased in size by one and a new Account object instantiated to be pointed to by the new additional pointer at the end. The new Account object holds the id and password of the new account and its items. When a new account is opened, a check is made that the account does not already exist and that the password matches an existing account.
* Each account has Items for sale. An Item has a description and a price. When a new Item is added the array of Item pointers is increased in size by one and a new Item object instantiated to be pointed to by the new additional pointer at the end.
* You must use functions like strlen() and strcpy() or similar etc. from the standard C library to handle strings. You cannot use the C++ string class. Each string on the heap is allocated just sufficient memory to hold it and no more.
* Input/output is done with cin and cout.
* You must only use new and delete for dynamic memory management. Constructors instantiate objects and destructors release their resources when they are deleted or go out of scope so there are no resource leaks.
* An ID can only be used once, passwords must match etc. - output for failed input of this kind must be informative i.e. the application must “fail gracefully”.
* Overloaded insertion operators are added for output with cout for all classes
* An overloaded indexing operator that takes a string is used to select a particular account for output.

An example of the output of the running application is given at the end. Yours must look identical.

See the Marking Sheet for how you can lose marks, but you will lose 60% if: 1. you change the supplied code in any way at all (not a single character) - no code added or removed, no macros, no defines, no statics and no additional functions, 2. it fails to build in Visual Studio 2012 or 2013, 3. it crashes in normal operation, 4. it doesn’t work like the example. There must be no resource leaks (undeleted heap memory) when your application terminates (30% penalty).

Part of the code is shown on the next page. You MUST use this code **without modification.** Your task is to add the implementation of the class member functions and the global overloaded insertion operators. Note that each source code file (but not the header files) in general includes both its header and, preceding that, headers of more primitive classes that the compiler needs to know about. Header files do not include other header files except, for example, system header files that may be needed for input/output for inline in inline or global friend functions. Each class has its own header file (.h) for its class definition and its own source code file (.cpp) for the bodies of its member functions, defined with scope resolution.

**What to Submit :** Use Blackboard to submit this assignment as a zip file (**not** RAR) containing only the source code files (Item.cpp, Account.cpp and FleaBay.cpp). The name of the zipped folder **must** contain your name as a prefix so that I can identify it, for example, for CST8219, using my name the file would be tyleraAss2CST8219.zip. It is also vital that you include the Cover Information (as specified in the Submission Standard) as a file headers in your source code files so they can be identified as yours. Before you submit the code, check that it builds and executes in Visual Studio 2012 or 2013 as you expect - if it doesn’t build for me, for whatever reason, you get a deduction of at least 60%. There is a late penalty of 25% per day. Don’t send me the file as an email attachment – it will get 0.

***Example code: don’t change it (not even a single character).***

|  |  |  |
| --- | --- | --- |
| // In Item.h  typedef class Item  {  char\* description;  double price;  public:  Item();  Item(Item&);  Item(char\*,double);  ~Item();  friend ostream& operator<<(ostream&, Item&);  }\*pItem,\*\*ppItem; | // In Account.h  typedef class Account  {  char\* ID;  char\* PassWord;  unsigned int numItems;  ppItem items;  public:  Account();  Account(Account&);  Account(char\*,char\*);  ~Account();  char\* getID(){return ID;}  char\*& getPassWord();  unsigned int getnumItems(){return numItems;}  void AddItem();  friend ostream& operator<<(ostream&,Account&);  }\*pAccount,\*\*ppAccount; | // In FleaBay.h  typedef class FleaBay  {  unsigned int numAccounts;  ppAccount accounts;  bool AddNewAccount();  public:  FleaBay();  ~FleaBay();  bool Login();  Account operator[](char\*);  friend ostream& operator<<(ostream&,FleaBay&);  }\* pFleaBay; |

|  |
| --- |
| // In ass2.cpp  #include "Item.h"  #include "Account.h"  #include "FleaBay.h"  #include <iostream>  using namespace std;  int main(void)  {  bool bRunning = true;  char id[256];  char response;  FleaBay e;  while(bRunning)  {  cout<<"\nPlease enter your choice"<<endl;  cout<<"1. FleaBay Login"<<endl;  cout<<"2. FleaBay Report"<<endl;  cout<<"3. Report an Account"<<endl;  cout<<"4. Quit"<<endl;  cin>>response;  cin.ignore(256,'\n');  switch(response)  {  case '1':  if(!e.Login())  return 1;  break;  case '2':  cout<<e;  break;  case '3':  cout<<"please enter the account id: ";  cin.getline(id,256,'\n');  cout<<e[id];  break;  case '4':  bRunning=false;  break;  default:  cout<<"invalid choice";  }  }  return 0;  } |

*Example Output*

Please enter your choice

1. FleaBay Login

2. FleaBay Report

3. Report an Account

4. Quit

1

\*\*NO ACCOUNTS\*\*

1. Add a new Account

2. Open an existing Account

3. Return to Main Menu

1

please enter your account ID: Andrew Tyler

please enter your account password: at 100

Please enter your choice

1. FleaBay Login

2. FleaBay Report

3. Report an Account

4. Quit

1

1. Add a new Account

2. Open an existing Account

3. Return to Main Menu

2

please enter your account ID: Andrew Tyler

please enter your password: at 100

No items in your account

Do you wish to change a password? (yes = 'P')

Do you wish to add another Item (yes = 'Y')

Want to quit this menu?(yes = 'Q')

P

please enter your new password: at 200

Do you wish to change a password? (yes = 'P')

Do you wish to add another Item (yes = 'Y')

Want to quit this menu?(yes = 'Q')

Q

Please enter your choice

1. FleaBay Login

2. FleaBay Report

3. Report an Account

4. Quit

1

1. Add a new Account

2. Open an existing Account

3. Return to Main Menu

2

please enter your account ID: Andrew Tyler

please enter your password: at 100

at 100 password doesn't match this ID

Please enter your choice

1. FleaBay Login

2. FleaBay Report

3. Report an Account

4. Quit

1

1. Add a new Account

2. Open an existing Account

3. Return to Main Menu

2

please enter your account ID: Andrew Tyler

please enter your password: at 200

No items in your account

Do you wish to change a password? (yes = 'P')

Do you wish to add another Item (yes = 'Y')

Want to quit this menu?(yes = 'Q')

Y

Enter the new Item Description:

Red Ferrari

Please enter the new item price: 200000.00

Do you wish to change a password? (yes = 'P')

Do you wish to add another Item (yes = 'Y')

Want to quit this menu?(yes = 'Q')

Y

Enter the new Item Description:

Gold watch

Please enter the new item price: 250.00

Do you wish to change a password? (yes = 'P')

Do you wish to add another Item (yes = 'Y')

Want to quit this menu?(yes = 'Q')

Q

Please enter your choice

1. FleaBay Login

2. FleaBay Report

3. Report an Account

4. Quit

1

1. Add a new Account

2. Open an existing Account

3. Return to Main Menu

1

please enter your account ID: Fred Smith

please enter your account password: fs 100

Please enter your choice

1. FleaBay Login

2. FleaBay Report

3. Report an Account

4. Quit

1

1. Add a new Account

2. Open an existing Account

3. Return to Main Menu

2

please enter your account ID: Fred Smith

please enter your password: fs 100

No items in your account

Do you wish to change a password? (yes = 'P')

Do you wish to add another Item (yes = 'Y')

Want to quit this menu?(yes = 'Q')

Y

Enter the new Item Description:

Android Tablet

Please enter the new item price: 100.00

Do you wish to change a password? (yes = 'P')

Do you wish to add another Item (yes = 'Y')

Want to quit this menu?(yes = 'Q')

Q

Please enter your choice

1. FleaBay Login

2. FleaBay Report

3. Report an Account

4. Quit

2

Account ID: Andrew Tyler

Item 0: Red Ferrari, cost = $200000.00

Item 1: Gold watch, cost = $250.00

Account ID: Fred Smith

Item 0: Android Tablet, cost = $100.00

Please enter your choice

1. FleaBay Login

2. FleaBay Report

3. Report an Account

4. Quit

3

please enter the account id: Andrew Tyler

Account ID: Andrew Tyler

Item 0: Red Ferrari, cost = $200000.00

Item 1: Gold watch, cost = $250.00

Please enter your choice

1. FleaBay Login

2. FleaBay Report

3. Report an Account

4. Quit