Assignment #2

Problem Solving and Programming in C++
Department of Computer Science
Old Dominion University

Objectives: This assignment will give you an opportunity to explore the process of dividing a **C++** program into modules and using the project support components of a C++ IDE to manage your modules.

General Instructions: Read the problem description below and implement this program in C++. The files for this assignment are provided under the folder for this assignment. You will be submitting two separate projects. See Part A and Part B for details.

- All of the functions making up this program are complete and in working order except for those marked with ///FILL THIS FUNCTION comments, which you must implement.
- The major challenge in this assignment is to divide the program into separately compiled modules.
  - An Inventory Update module, consisting of files `'inbound.h'` and `'inbound.cpp'`, containing code dealing specifically with updating the Inventory from an Invoice.
  - A Sales module, consisting of files `'sales.h'` and `'sales.cpp'` containing code dealing specifically with recording a new sale.
  - There are some functions that are not specifically related to either of these modules, but are called by or contain code needed by certain modules. You should apportion these functions to the modules in a way consistent with the goals of ***high cohesion*** and ***low coupling***.
  - Consult the comments in the provided code for additional details.
- The given code has Global Variables. Your finished code should have no Global Variables.

Problem description:

A local Nursery needs help managing its inventory. They need to be able to upload new inventory quickly via invoice documents. They also need to be able to manage their inventory efficiently when they make New Sales. In addition to daily inbound and outbound inventory management, they would like to print reports for past sales and current inventory status.

Input

Input to the program is taken from several text files containing sales data, inventory data, and invoice data. These are included, but your program should function even if the information in the data files were to change with the format being the same. The first line in every file is the number of data points(lines) in the file.

Output

The output should be regular updates to the inventory and sales files, as well as interactive menus, sales and inventory reports, and NewSale total at the conclusion of a sale.

Part A:

Create a project containing the file `'main.cpp'`. Implement the empty functions marked with "///Fill This Function" comments, remove Global Variables, and ensure correct input and output. The program should compile and have expected Input and Output as outlined above. You will not need to split the functions into Modules for this portion. **You DO need to create function declarations and move main() to the top of the list of functions.**

Part B:

Create a project containing the files `'main.cpp'`, `'inbound.cpp'`, `'inbound.h'`, `'sales.cpp'`, `'sales.h'`. Split the functions from Part A into the appropriate modules as outlined in the general instructions. The program should compile and have the same input and output as Part A.

Submission notes:

- Submit all files from your project **folder**, including the .cpp, .cbp, .h, and input files.
- Be sure that your project compiles on CS Department computers before submission.
- Zip each **folder** and name it as "Assg2A_cslogin.zip" and "Assg2B_cslogin.zip", where the cslogin is your login ID for the computers at the Department of Computer Science at ODU. Bin and Debug folders do not need to be included.
- Submit the zipped file in the respective Blackboard link.

Print Inventory Report Before Inbound

```
 Main Menu
1 New Sales
2 Print Sales Report
3 Print Inventory Report
4 Inbound Inventory
5 Exit

Enter Selection: 3
------------------Inventory-----------------

Maple           Tree            15          45.00
Holly           Tree            10          40.00
Morning Glory   Annual          75          05.00
Petunia         Annual          22          05.00
Hollyhock       Perennial       37          10.00
Digitalis       Perennial       12          10.00
Aster           Perennial       12          10.00
Burning Bush    Shrub           13          20.00
Yew             Shrub           25          40.00
Birch           Tree            10          60.00
Lilac           Shrub           12          35.00
Blue Star       Perennial       12          06.00
Ajuga           Perennial       13          08.00
Big Boys        Vegetables      400         08.00
Lobelia         Annual          50          03.00
Delphinium      Perennial       45          10.00
Rhododendron    Shrub           45          40.00
```

Loading an Invoice

```
 Main Menu
1 New Sales
2 Print Sales Report
3 Print Inventory Report
4 Inbound Inventory
5 Exit

Enter Selection: 4

Enter the file name of the invoice: invoice.txt

How much to charge for Apple?
Enter cost: 35.00
```

Print Inventory Report After Loading Invoice. Should show changes

```
 Main Menu
1 New Sales
2 Print Sales Report
3 Print Inventory Report
4 Inbound Inventory
5 Exit

Enter Selection: 3
------------------Inventory----------------

Maple           Tree           20        45.00
Holly           Tree           10        40.00
Morning Glory   Annual         75        05.00
Petunia         Annual         22        05.00
Hollyhock       Perennial      37        10.00
Digitalis       Perennial      12        10.00
Aster           Perennial      12        10.00
Burning Bush    Shrub          13        20.00
Yew             Shrub          25        40.00
Birch           Tree           15        60.00
Lilac           Shrub          22        35.00
Blue Star       Perennial      12        06.00
Ajuga           Perennial      13        08.00
Big Boys        Vegetables     400       08.00
Lobelia         Annual         50        03.00
Delphinium      Perennial      45        10.00
Rhododendron    Shrub          60        40.00
Apple           Fruit Tree     6         35.00
```

Print Sales Report

```
 Main Menu
1 New Sales
2 Print Sales Report
3 Print Inventory Report
4 Inbound Inventory
5 Exit

Enter Selection: 2
----------------------Sales Report-----------------

1    Maple          2              45.00     90.00
2    Burning Bush   8              20.00    160.00
2    Morning Glory  3               5.00     15.00
2    Blue Star      12              6.00     72.00
3    Ajuga          3               8.00     24.00
3    Big Boys       16              2.00     32.00
4    Lobelia        5               3.00     15.00
4    Delphinium     5              10.00     50.00
```

Making a sale

```
 Main Menu
1 New Sales
2 Print Sales Report
3 Print Inventory Report
4 Inbound Inventory
5 Exit

Enter Selection: 1
--------------NEW SALE--------------

Sale Num: 5

Enter Name of Item: Maple
20 Maples are available
Enter amount: 12

Item Total: 540.00
Add another item(y/n)? Holly
Not a valid answer
Add another item(y/n)? y
Enter Name of Item: Holly
10 Hollys are available
Enter amount: 8

Item Total: 320.00
Add another item(y/n)? y
Enter Name of Item: Ajuga
13 Ajugas are available
Enter amount: 5

Item Total: 40.00
Add another item(y/n)? n
-----------------------Sale Num 5-------------------

5    Maple          12              45.00    540.00
5    Holly          8               40.00    320.00
5    Ajuga          5                8.00     40.00
Total-----------------------------------------900.00
```

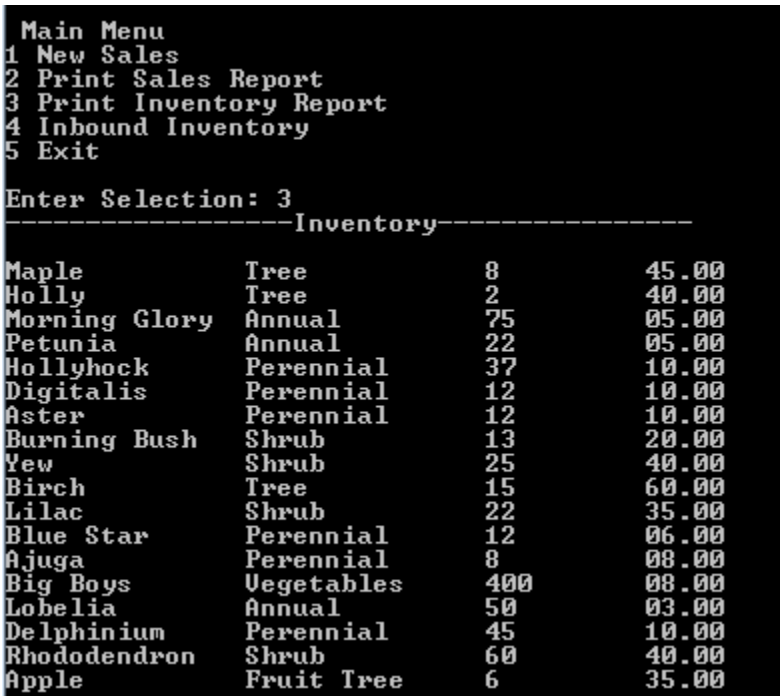
Print Sales Report After Sale

```
 Main Menu
1 New Sales
2 Print Sales Report
3 Print Inventory Report
4 Inbound Inventory
5 Exit

Enter Selection: 2
-----------------------Sales Report-----------------

1    Maple          2               45.00     90.00
2    Burning Bush   8               20.00    160.00
2    Morning Glory  3                5.00     15.00
2    Blue Star      12               6.00     72.00
3    Ajuga          3                8.00     24.00
3    Big Boys       16               2.00     32.00
4    Lobelia        5                3.00     15.00
4    Delphinium     5               10.00     50.00
5    Maple          12              45.00    540.00
5    Holly          8               40.00    320.00
5    Ajuga          5                8.00     40.00
```

Print Inventory Report After Sale



```
 Main Menu
1 New Sales
2 Print Sales Report
3 Print Inventory Report
4 Inbound Inventory
5 Exit

Enter Selection: 3
------------------Inventory----------------

Maple           Tree           8          45.00
Holly           Tree           2          40.00
Morning Glory   Annual         75         05.00
Petunia         Annual         22         05.00
Hollyhock       Perennial      37         10.00
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Ajuga           Perennial      8          08.00
Big Boys        Vegetables     400        08.00
Lobelia         Annual         50         03.00
Delphinium      Perennial      45         10.00
Rhododendron    Shrub          60         40.00
Apple           Fruit Tree     6          35.00
```