CIS22B Final Project

Serendipity Bookseller Program

Project Team Members:

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Modules

Book Class:

Contains all necessary object attributes. A template function to format numbers correctly. Operator overloads for ifstream/ofstream to be used during reading and writing of book list data.

Book Store Module:

Contains the array of Book objects inputted from the data file and the required methods to add, remove, read & write to file, find, and get books from the list. Maintains the information to be passed amongst the rest of the modules and is friend class to the Book class.

Menu Module:

Contains the referenced Book Store module to be used for its child classes. This is the base class the cashier, inventory, and report modules will inherit off of and is what main will use to call the redefinition of the menu function.

Cashier Module:

Contains the ability to search for books via title, ISBN, or author after which they can be added to the cart with the user specified quantity. Upon check out, the cashier module will list all books in the cart, the subtotal, tax, and total amount of the sale. On exit, will save changes to the quantity of the books in cart to file.

Inventory Module:

Contains the ability to search for books via title, ISBN, or author and the ability to search with partial terms. Allows adding and removing books from the bookstore list as well as editing a book's details. On exit, will request confirmation to save changes to file.

Report Module:

Contains the ability to list the entire inventory stock, total wholesale value, and total retail value. Allows sorting of the inventory into three categories: quantity (highest to lowest), wholesale cost (highest to lowest), and date added (oldest to newest).

Pseudo-code

Main Menu -> load **Book Store** and input file -> request choice from user

1. **Cashier**
   a. Search -> Title / ISBN / Author
      i. Check stock -> if good, how many? / if none, prompt
      ii. Return to cashier menu
   b. Checkout
      i. Check cart has items
      ii. Calculate subtotal, tax, total -> list cart items
   c. Exit to main menu
      i. Save quantity changes to file
2. **Inventory**
   a. Look up book (partial term acceptable)
      i. List books that match
   b. Add book
      i. Check if book exists -> if yes, add to quantity / else, add
   c. Remove book
      i. Find book using exact terms
   d. Edit book
      i. Find book using exact terms
      ii. List attributes to edit, display results
   e. Exit to main menu
      i. Prompt confirmation to save to file if changed
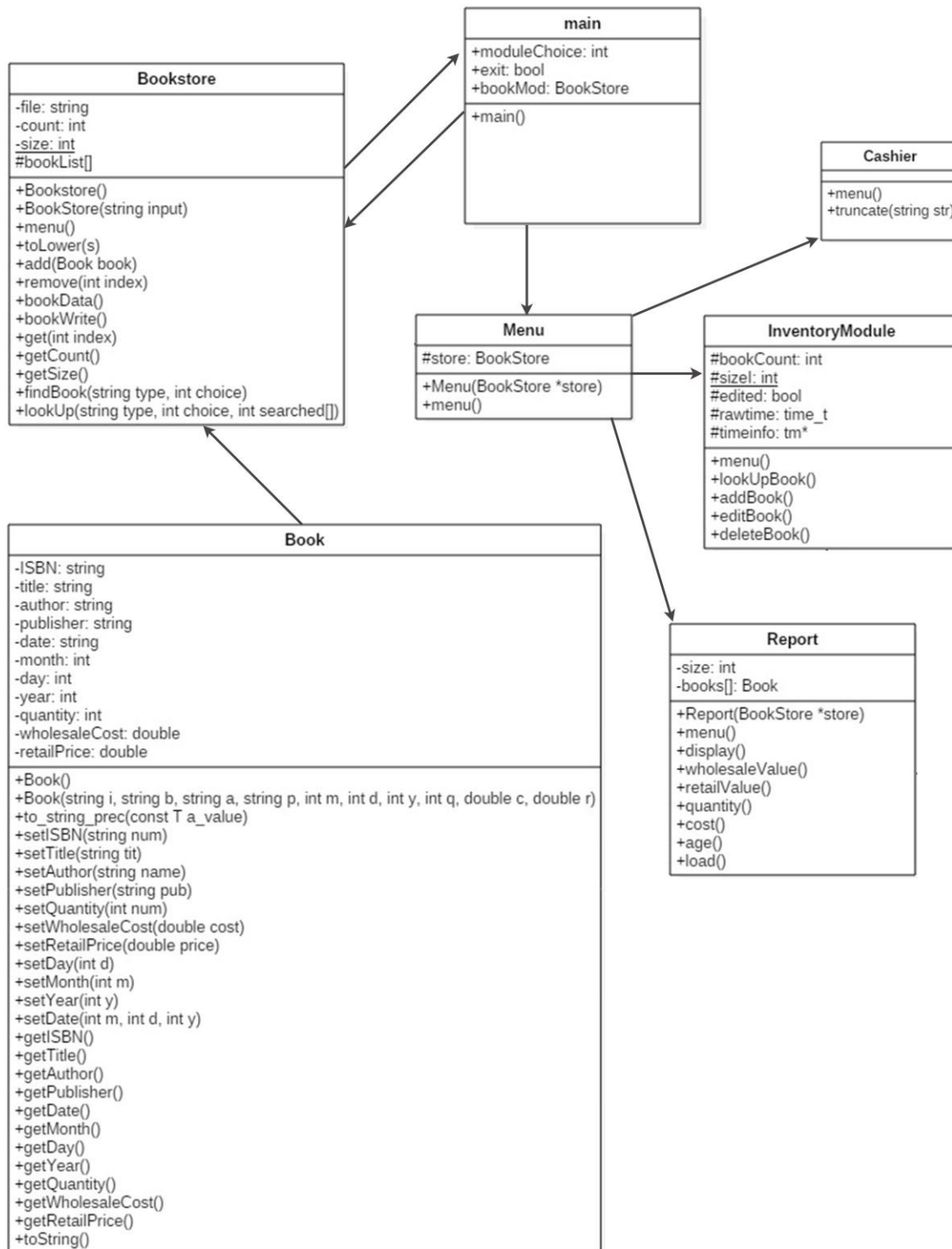3. **Report**
   a. Display inventory
   b. Wholesale value total -> include multiple copies in total
   c. Retail value total -> include multiple copies in total
   d. Sort
      i. Quantity (highest to lowest)
      ii. Date added (oldest to newest)
      iii. Wholesale cost (highest to lowest)
   e. Exit to main menu
4. **Exit program**
   a. Deallocate module objects
   b. End program

Program UML Diagram

main

+moduleChoice: int
+exit: bool
+bookMod: BookStore

+main()

Bookstore

-file: string
-count: int
-size: int
#bookList[]

+Bookstore()
+BookStore(string input)
+menu()
+toLower(s)
+add(Book book)
+remove(int index)
+bookData()
+bookWrite()
+get(int index)
+getCount()
+getSize()
+findBook(string type, int choice)
+lookUp(string type, int choice, int searched[])

Cashier

+menu()
+truncate(string str)

Menu

#store: BookStore

+Menu(BookStore *store)
+menu()

InventoryModule

#bookCount: int
#sizeI: int
#edited: bool
#rawtime: time_t
#timeinfo: tm*

+menu()
+lookUpBook()
+addBook()
+editBook()
+deleteBook()

Book

-ISBN: string
-title: string
-author: string
-publisher: string
-date: string
-month: int
-day: int
-year: int
-quantity: int
-wholesaleCost: double
-retailPrice: double

+Book()
+Book(string i, string b, string a, string p, int m, int d, int y, int q, double c, double r)
+to_string_prec(const T a_value)
+setISBN(string num)
+setTitle(string tit)
+setAuthor(string name)
+setPublisher(string pub)
+setQuantity(int num)
+setWholesaleCost(double cost)
+setRetailPrice(double price)
+setDay(int d)
+setMonth(int m)
+setYear(int y)
+setDate(int m, int d, int y)
+getISBN()
+getTitle()
+getAuthor()
+getPublisher()
+getDate()
+getMonth()
+getDay()
+getYear()
+getQuantity()
+getWholesaleCost()
+getRetailPrice()
+toString()

Report

-size: int
-books[]: Book

+Report(BookStore *store)
+menu()
+display()
+wholesaleValue()
+retailValue()
+quantity()
+cost()
+age()
+load()

Program Screenshots

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        { SERENDIPITY BOOKSELLERS }

        { MAIN MENU }

        1. [ Cashier ]
        2. [ Inventory ]
        3. [ Report ]
        4. [ Exit ]

            Enter choice: _
```

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        { SERENDIPITY BOOKSELLERS }

        { CASHIER }

            Add by:
        1. [ Title ]
        2. [ ISBN ]
        3. [ Author ]
        4. [ Checkout ]
        5. [ Exit ]

            Enter choice:
```

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        { SERENDIPITY BOOKSELLERS }

        { CASHIER }

Please enter title to search: Harry Potter

Searching using book title:
Found!

Found:
ISBN: 0545791340
Title: Harry Potter
Author: J.K. Rowling
Publisher: Arthur A. Levine Books
Date Added: 03/09/2017
Quantity: 1
Wholesale Cost: 19.99
Retail Price: 36.99

    Add to cart?: (Y/N) Y
    Only 1 in stock. Adding to cart.

_
```

```
        { SERENDIPITY BOOKSELLERS }

        { CASHIER CHECKOUT}


Qty           ISBN                        Title      Price
        _____

   1       0545791340              Harry Potter    $36.99
   2       0399501487          Lord of the Flie...  $19.98


        Subtotal: $56.97
          Subtax: $4.13
           Total: $61.10
```

```
        { SERENDIPITY BOOKSELLERS }

        { INVENTORY MENU }

        1. [ Search for Book ]
        2. [ Add Book ]
        3. [ Remove Book ]
        4. [ Edit Book ]
        5. [ Return to Main Menu ]

           Enter choice: _
```

```
        { SERENDIPITY BOOKSELLERS }

        { NEW BOOK }

Please enter title: A New Hope
Please enter ISBN: 134910424
Please enter author: George Lucas
Please enter publisher: Lucasfilms
Please enter quantity: 1
Please enter wholesale cost: 29.99
Please enter retail price: 39.99

Searching using book title:
Book not found in shelf, adding new book.


{ BOOK SUCCESSFULLY ADDED }

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          { SERENDIPITY BOOKSELLERS }

          { NEW BOOK }

Please enter title: Harry Potter
Please enter ISBN: 0545791340
Please enter author: J.K. Rowling
Please enter publisher: Arthur A. Levine Books
Please enter quantity: 2
Please enter wholesale cost: 19.99
Please enter retail price: 36.99

Searching using book title:
Found!


{ BOOK FOUND, ADDING NEW QUANTITY }

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```

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ISBN: 0399501487
Title: Lord of the Flies
Author: William Golding
Publisher: Penguin Books
Date Added: 12/16/2003
Quantity: 6
Wholesale Cost: 6.79
Retail Price: 9.99
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          Select:
     1. [ Title ]
     2. [ ISBN ]
     3. [ Author ]
     4. [ Publisher ]
     5. [ Date ]
     6. [ Quantity ]
     7. [ Wholesale Cost ]
     8. [ Retail Price ]
     9. [ Exit ]

          Enter choice: 1

          Enter new title: Lord of My Pants

{ SUCCESSFULLY CHANGED: [Lord of the Flies] TO: [Lord of My Pants] }
```

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        { SERENDIPITY BOOKSELLERS }

        { REPORT MENU }

          Select option:
        1. [ View Inventory ]
        2. [ Wholesale Value ]
        3. [ Retail Value ]
        4. [ Sort Inventory ]
        5. [ Return to Main Menu ]

          Enter choice: _
```

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        { SERENDIPITY BOOKSELLERS }

        { TOTAL WHOLESALE VALUE }

                        Harry Potter: $19.99 (8)
                           Catch-22: $7.99 (2)
                             Island: $4.45 (1)
                   Lord of My Pants: $6.79 (6)
                     The Art of War: $3.89 (3)
          The Fellowship of the Ring: $7.89 (2)
               Midnight's Children: $2.31 (77)
             Starting Out with C++: $11.95 (22)
                    Everyone Poops: $2.99 (1)
       Diary of a Wimpy Kid, Book 1: $4.59 (333)
                     Anna Karenina: $0.99 (1)
          The Count of Monte Cristo: $6.42 (14)
                       Don Quixote: $1.99 (22)
                Gone with the Wind: $5.15 (10)
                         Gone Girl: $2.77 (1)
           A Brief History of Time: $3.99 (8)
                Death by Black Hole: $6.99 (9)
      The Road Not Taken and Other Poems: $4.33 (12)
                       The Martian: $10.35 (69)
                  Ready Player One: $5.99 (101)
                      Ender's Game: $3.34 (1)
             The Secret Life of Bees: $3.34 (33)
                  A man Called Ove: $199.99 (1)
      The Hitchhiker's Guide to the Galaxy: $12.17 (42)
                The Name of the Wind: $9.73 (12)

        { TOTAL WHOLESALE VALUE }
             [ $4817.07 ]

Press any key to continue . . .
```

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        { SERENDIPITY BOOKSELLERS }

        { SORT MENU }

           Select option:
        1. [ Quantity ]
        2. [ Wholesale Cost ]
        3. [ Date Added ]
        4. [ Return to Main Menu ]

           Enter choice:
```

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        { DISPLAY INVENTORY }

ISBN: 0486275507
Title: The Road Not Taken and Other Poems
Author: Robert Frost
Publisher: Dover Thrift Editions
Date Added: 04/19/1993
Quantity: 12
Wholesale Cost: 4.33
Retail Price: 11.99

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ISBN: 0812550706
Title: Ender's Game
Author: Orson Scott Card
Publisher: Tor Science Fiction
Date Added: 07/15/1995
Quantity: 1
Wholesale Cost: 3.34
Retail Price: 8.99

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ISBN: 0345391802
Title: The Hitchhiker's Guide to the Galaxy
Author: Douglas Adams
Publisher: Del Rey
Date Added: 09/27/1995
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