Homework 4 (Managing Loans)

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Homework 4

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CSCE 1040

Class Diagram:

MAKES

BORROWS

COLLECT

COLLECT

COLLECT

LOAN

PATRON

LOANS

PATRONS

Count (int)

Book list (vector)

Add\_Book

Delete\_Book

Edit\_Book

Find\_Book

Print\_Book

Load Book

Store Book

Added For HWK4-

Adding Inheritance with

Book, audioCd, dvd

LIBRARYITEMS

LOANS

Check in

Check out

Overdue list

List of Loans (vector)

Edit\_Loan

Delete\_Loan

Patron’s book list

# of books borrowed

Report lost book

Added For HKW3-

Load Book

Store Book

PATRONS

Add\_Patron

Edit\_Patron

Delete\_Patron

Patron list (vector)

Print\_Patron

Added For HKW3-

Load Book

Store Book

audioCd

dvd

book

Library Item

LibraryItems

Name (string)

ID # (Set/Get)

Fine Balance (int)

Current # Of Books Out (int)

Id (int)

Cost (float)

Status (string)

LoanPeriod (int)

Loan ID (Set/Get)

Book ID (Set/Get)

Patron ID (Set/Get)

Due Date/Time

(string)

Current Status

(Overdue, normal)

LIBRARYITEM

PATRON

LOAN

LIBRARYITEM

audioCd

book

Inherits Libraryitem!

Adds-

Title (string)

Category (string)

Runtime (int)

Studio (string)

ReleaseDate (string)

Inherits Libraryitem!

Adds-

Artist (string)

Title (string)

Track (int)

ReleaseDate (string)

Genre (string)

Inherits Libraryitem!

Adds-

Title (string)

Author (string)

Isbn (int)

Category (string)

**Function Pseudo Code**

**Add Patron:**

1. Prompt users for ID
2. Prompt user for name
3. Create Patron object
4. Populate object
5. Add object to collection

**Delete Patron:**

1. Prompt users for ID
2. Prompt user for name
3. Search collection list for matching
4. Use delete function to remove object

**Edit Patron:**

1. Prompt users for ID
2. Search collection list for matching
3. Assign new value

**Find/Print Patron:**

1. Prompt for Patrons ID
2. Find Patron by name (return id)
3. Search all Books (by Patron id)
4. If patron id matches order
5. Print Patrons info

**Add LibraryItems:**

1. Prompt users for ID
2. Prompt user for name
3. Prompt user for ISBN #
4. Prompt user for title
5. Prompt user for cost
6. Prompt user for status
7. Create Patron object
8. Populate object
9. Add object to collection (vector for book list)

**Edit LibraryItems:**

1. Prompt users for ID
2. Prompt user for name
3. Prompt user for ISBN #
4. Prompt user for title
5. Prompt user for cost
6. Prompt user for status
7. Search collection list to find matching
8. Assign new value

**Delete LibraryItems:**

1. Prompt user for ISBN #
2. Find matching
3. Use delete function to remove the object

**Find/Print LibraryItems:**

1. Prompt user for ISBN #
2. Use Find and an object attribute
3. Locate the attribute
4. Print the object

**Add Loan:**

1. Prompt user for Loan ID
2. Prompt user for Patron ID
3. Prompt user for Due date
4. Prompt user for time
5. Create Loan object
6. Populate object
7. Add object to collection

**Edit Loan:**

1. Prompt user for Loan ID
2. Prompt user for Patron ID
3. Prompt user for Due date
4. Prompt user for time
5. Search the list to find matching.
6. Assign new value

**Delete Loan:**

1. Prompt user for Loan ID
2. Prompt user for Patron ID
3. Prompt user for Due date
4. Prompt user for time
5. Search collection to find matching
6. Use delete function to remove object

**Check out:**

1. Prompt user for Patron ID
2. Find patron loan object
3. Use “# of books borrowed” to make sure <=6
4. Make a counter to +1
5. Write message letting user know if they have more than 6
6. If not add +1

**Check in:**

1. Prompt user for Patron ID
2. Locate object of Patron
3. Use Fine Bal to check if its =0
4. If not print Fine Bal

**Report Lost Book:**

1. Prompt user for Patron ID
2. Find loan object
3. Add 1 to value of the report lost book attribute
4. Find Bal attribute and cost (Patron object)
5. Find status and change structure to lost (Book object)

Report

This homework assignment took me a very short amount of time. The hardest part of this assignment was reading the instructions given. The example provided was very useful, as most of the information was directly related to our Homework. Although the instructions took a while to read and understand, looking at the example provided made it very easy for me to complete this homework efficiently and quickly. I have found that designing a system before actually programming is very useful as it connects topics and my thoughts together to make the coding aspect easier.