

Homework 4

Shane Clark



CSCE1040

CLASS RELATIONSHIPS

Library Item

Loans

Patrons

Collects

Collects

Manages

Patron

DVD

Loan

CD

Book

Manages

Collects

Library Items

**CLASS CONTENTS**

LoanS

* add Loan = check-out book
* edit Loan = re-check book
* delete Loan = check-in book
* find Loan
* print list of all loan data
* Print details for single Patron
* determine if fines owed after check-in
* list all overdue
* list all books for patron
* update loan based on system
* report lost
* adds cost of book to patron balance if lost
* delete book if lost
* print list of overdue books with patron info

PatronS

* pay fine
* add patron
* edit patron
* delete patron
* find patron
* print patron
* print patron list, fines

Patron

data

* [string] Name (First Last)
* [int] ID Number (6 digits)
* [float] fine balance
* [int] # of books out
* get/set name
* get/set id #
* get fine balance
* get/set # books out

Loan

data

* [int] loan id
* [int] book id
* [int] patron id
* due date and time
* [enum]current status: overdue, normal
* get/set loan id
* get book id
* get patron id
* get/set due date & time
* get/set status

Library Item

data

* [INT]idnUM
* [FLOAT] COST
* [CHAR] STATUS
* [int] LOAN pERIOD
* get/set IDNUM
* get/set STATUS
* get/set LOANPERIOD
* PRINT

Library Item Collections

* add book/DVD/CD
* edit book/DVD/CD
* delete book/DVD/CD
* find book/DVD/CD
* print list of books/DVDS/CDS

DVD

data

* [string]CATEGORY
* [string] title
* [INT] RUNTIME
* [STRING] STUDIO
* [STRING] RELEASE DATE
* get/set CATEGORY
* get/set title
* get/set RUNTIMTE
* get/set STUDIO
* get/set RELEASE DATE
* PRINT SINGE DVD

CD

data

* [string]ARTIST
* [string] title
* [INT] NUMTRACKS
* [STRING] RELEASE DATE
* [STRING] GENRE
* get/set ARTIST
* get/set title
* get/set NUMTRACKS
* get/set RELEASE DATE
* get/set GENRE
* PRINT SINGLE CD

Book

data

* [string]TITLE
* [string] AUTHOR
* [string] isbn letter or #’s
* [STRING] CATEGORY
* get/set author name
* get/set title
* get/set isbn
* get/set CATEGORY
* PRINT SINGLE BOOK

Pseudo Code

PATRON:

pay fine:

Return the book function

Establishing cost:

Check to see if loan period is good

If outside of loan period window, then multiply amount of days by 25 cents per day

Return the total amount owed

Update balance

Add patron:

Prompt user for first and last name

Prompt user for id number

Create customer object

Instantiate object

Add object to collection

Edit patron:

Prompt user for patron id

Use the search/find feature to locate the patron you wish to edit based off id

Display patron info from a structure standpoint

Give ability to edit patron info

Save new input to structure location

Delete patron:

Prompt user for patron id

Use search feature to find patron by id

Give menu on what you would like to do with this patron

Delete object

Find patron:

Prompt user for patron id

Compare id to the collection ids

Return patron and data associated with id that matches

Print patron:

Prompt for patron id

Search/find patron

Print data assigned to patron

Print patron list, fines:

Get patron list

Print formatted data assigned to patron

Print formatted fines assigned to all patrons

LIBRARY ITEMS:

Add book/cd.dvd:

Prompt user for book data author name, title, isbn, library id and cost

Create book object

Instantiate object

Add object to book collection

Edit book/cd/dvd:

Prompt user for book library id

Use the search/find feature to locate the book you wish to edit based off id

Display book info from a structure standpoint

Give ability to edit book info

Save new input to structure location

Delete book/cd/dvd:

Prompt user for book library id

Use search feature to find book by id

Give menu on what you would like to do with this book

Delete object

Find book/cd/dvd:

Prompt user for book library id

Compare id to the collection ids

Return books and data associated with id that matches

Print books/cd/dvd:

Get book objects as list

Format

Print books

Print book singular/cd/dvd:

Prompt for book library id

Use find function to compare id to collection

Return what matches

Print out what is returned

LOANS:

Add loan = check-out book

Prompt for patron id

Determine if book is a recheck or new check

Call recheck if needed

Determine if checked out total is >6

If so, return can’t check out over limit

Otherwise,

Prompt for book library id

Update book status

Add book to patron checked book list

Start timer associated to that book for check out date

Edit loan = re-check book

Prompt for patron id

Find book wanting to recheck using book search

Determine if rechecks allowed (>1 recheck is not allowed)

Return not allowed if already

Ask if would like to return book instead

If return book can’t happen update book status to lost

Update patron balance to reflect book cost

Otherwise,

Update book check status

Reset timer associated to that book for check out date

Delete loan = check-in book

Prompt for patron id

Find book wanting to check in using book search

Determine if fines exist function

Prompt for payment

Otherwise,

Delete book from patron data

Update book status

Find loan

Prompt for patron id

Print list of all loan data

Get loan data

Print return formatted

Determine if fines owed after check-in

Prompt for patron id

Get book list associated to that id

Compare time out with current time

Calculate total owed (if over 10 days without recheck/20 with) multiply by 25 cents per day

Return total

List all overdue

Use find loan

Compare those loans over time in a loop

Print remaining loans from object in a loop

Adds cost of book to patron balance if lost

Delete book if lost

Print list of overdue books with patron info