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CSCE 1040 Homework 2

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| **Book** |
| Author(set and get), (string) |
| Title(set and get), (string) |
| ISBN Number (set and get), (int) |
| Library ID Card(set and get) (int) |
| Cost (set and get)(int) |
| Current Status(set and get) (string) |
| Setout and seting(void) |
| Num(static int) |

Library Management System Design

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| **Patron** |
| Name(set and get) (string) |
| ID Number(set and get) (int) |
| Fine Balance(set and get) (int) |
| Current # of books(set and get) (int) |
| Setfines, setlostfine setpay |
| Delnumbooks |
| nextID(static int) |

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| **Loan** |
| Loan ID (set and get) (int) |
| Book ID (set and get) (int) |
| Patron ID (int) |
| Due Date and Time (int) |
| Current Status (string) |
| Re (int) |

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| **Loans** |
| Check out |
| Check in |
| List all overdue |
| List all books for patron |
| Update loan status |
| Re-check a book |
| Edit a loan |
| Report lost |
| Borrow (vector) |
| Store Loans |
| Load Loans |

collects

collects

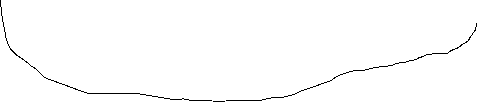
contains

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| --- |
| **Patrons** |
| Add Patron |
| Edit Patron  borrows |
| Delete Patron |
| Search Patron |
| Print all entries for Patrons |
| Print details for a single entry |
| People (vector) |
| Get Count |
| Add number of books |
| Search fine |
| Search number of books |
| Add fine |
| Add lost fine |
| Subtract lost fine |
| Search name |
| Store Patrons |
| Load Patrons |

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| --- |
| **Books** |
| Add Book |
| Edit Book |
| Delete Book |
| Search Book |
| Print all entries for Books |
| Print details for a single entry |
| bookCount (vector) |
| Report lost |
| Set in status |
| Set lost fine |
| StoreBooks |
| LoadBooks |



collects



Add Book:

Ask user for the author, title, price, and ISBN number



Get/create ID card and price

Set status to in

Create book object

Populate object

Add object to collection

Edit Book:

Ask user for the title

Search for id number

Change status to out

Delete Book:

Ask user for the title

search for book

Remove object from the collection

Search book:

Search for title (return title)

Print all books in the collection:

Use a loop to print out all books in the class

Print details for a single book:

Ask the user for the title of the book

Print the title, author, ISBN number, library ID card, cost, and current status of that book

Set status to in:

Search for id number

Set status of id number to in

Report lost:

Search for id number

Set status of id number to in

Search for Book name:

Search for id number

Return title of id number

Set lost fine:

Search for id number

Return price of id number

Store Books:

Open data file for writing books

Print out all books and their details

Load Books:

Open data file for reading books

Read in all the data from that file

Add Patron:

Ask user for the name

Get/create ID number

Set the fine balance and number of books to zero

Create patron object

Populate object

Add object to collection

Add number of books:

Search for id number

Add 1 to number of books

Delete Patron:

Ask user for the name

Remove object from the collection

Search patron:

Search for name

return id number

Print all patrons in the collection:

Use a loop to print out all objects in the class with the details

Print details for a single patron:

Ask the user for the name of the patron

Print the name, ID number, fine balance, and current number of books of that patron

Subtract number of books:

Search for id number

Subtract 1 from the number of books

Get Count:

Return the number of patrons

Search for number of books:

Search for id number

Return the number of books

Set Fine:

Search for id number

Add 25 cents to the matching id number of that patron’s fine

Search Name:

Search for id number

Return name of id number

Pay Fine:

Ask the user for their name

Ask how much they want to pay

Search for name

Subtract how much they want to pay from the fine balance

Store Books:

Open data file for writing patrons

Print out all books and their details

Load Books:

Open data file for reading patrons

Read in all the data from that file

Check out:

Ask user for their name

Ask what book they want to check out

Make sure the due date and time isn’t missed and that they have less than 6 books already checked out

If they’re good, assign a loan ID to the book and patron ID and assign the status to loaned out

Else tell them they can’t check out the book until one of the problem’s is fixed

Check in:

Ask the user their name and what book they’re checking in

Check to see if the book is past it’s due date and time

If it is, then multiply 0.25 to the number of days overdue and store it to the patron’s fine balance

List all overdue:

Ask the patron for their name or ID number

If they have at least one overdue book, print out all the overdue books and the total fines

List all books for the patron:

Ask for the patron’s name

Search for patron id number

Print out title of books the patron has currently checked out

Update loan status based on system clock:

If the loan of a book is longer than 10 days, add the book to the overdue list

Re-check a book:

Ask the patron for their name or ID number

Ask for the book they want to re-check

Search for book id and patron id

Count the number of times they re-checked the book

If they re-checked it 0 times, add 10 days to the number of days left of the original check out

Edit a loan:

Ask the patron for their name or ID number

Ask for the book they want to re-check

Count the number of times they re-checked the book

If they already re-checked it, tell the user they have already re-checked it

Report a lost:

Ask the patron’s name

Ask for the book they lost

Search for book id and patron id

Remove the book from the book collection

Add the cost of the book to the fine balance

Store Books:

Open data file for writing loans

Print out all books and their details

Load Books:

Open data file for reading loans

Read in all the data from that file