

A dark blue vertical bar is on the left. A light blue arrow points right from it, containing the date.

3/19/2017

DATABASE DESIGN

Programming Assignment - I

Library Management System

Several thin, dark blue curved lines originate from the bottom left and sweep upwards and to the right.

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OBJECTIVE:

The objective of this application is to serve a librarian in day-to-day activities in a Library. A librarian will be able to serve a user with the help of this application.

FUNCTIONAL DESCRIPTION:

The GUI of the application provides with the following functional capabilities to the librarian:

- **Borrower Management:** Ability to register a new user to the system upon entering the details of the user and generate a unique card number for the user.
- **Book Search & Availability:** Ability to search for books either using isbn/author/title or all combination of any of three.
- **Book Loans:** Ability to check for the availability of a book and checkout the book if it is available. Also, be able to return a book that has been borrowed by a particular user. The system also provides with the history of a particular user.
- **Pay Fine:** Ability to calculate the fine for a particular book with respect to a user who returns the book after the due date or has not yet returned the book. And keep track of whether the user has paid the fine or not.

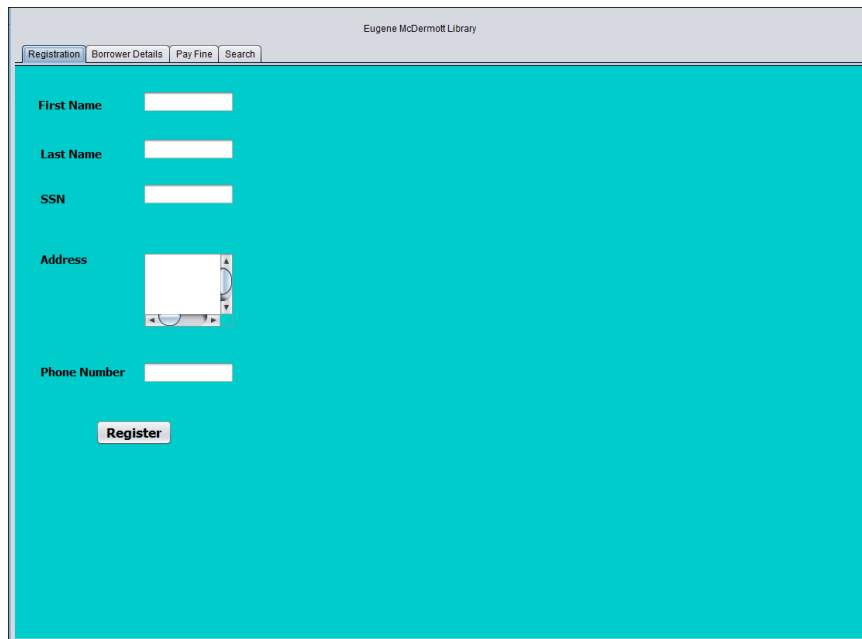
PLATFORM DETAILS:

1. Database Server: MySQL
2. JAVA Platform: Net Beans IDE 8.2
3. Operating System: Windows 10

GRAPHICAL USER INTERFACE

1. Registration Tab

This tab provides with an interface to register a new user into the Library Management System.

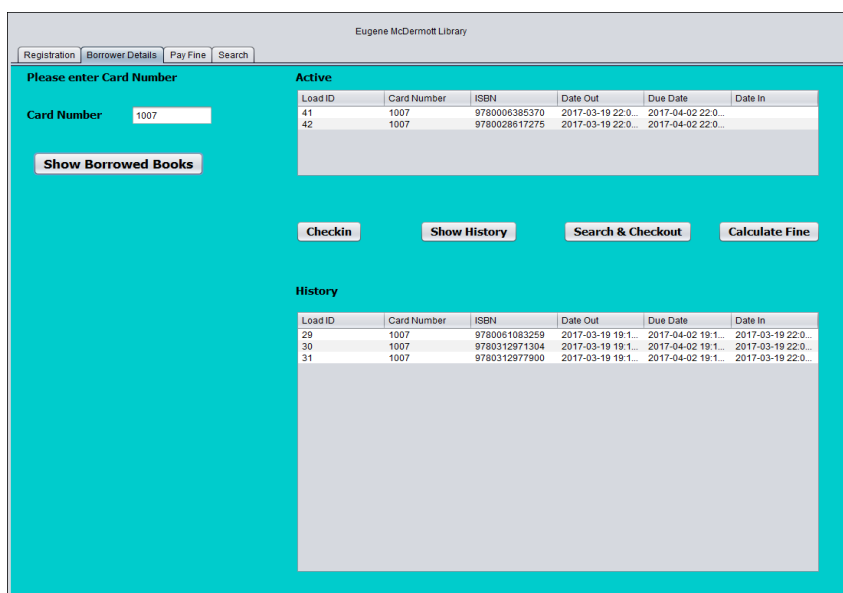


The Registration Tab interface for Eugene McDermott Library. It features a navigation bar with tabs: Registration, Borrower Details, Pay Fine, and Search. The main area has a light blue background and contains the following fields:

- First Name**: Text input field
- Last Name**: Text input field
- SSN**: Text input field
- Address**: Text area with a vertical scrollbar
- Phone Number**: Text input field
- Register**: Button

2. Borrower Details Tab

Assuming that we have registered user standing at the desk of a librarian, this tab provides with an interface to display all active borrows and history of the books borrowed by a particular library card holder.



The Borrower Details Tab interface for Eugene McDermott Library. It features a navigation bar with tabs: Registration, Borrower Details, Pay Fine, and Search. The main area has a light blue background and contains the following elements:

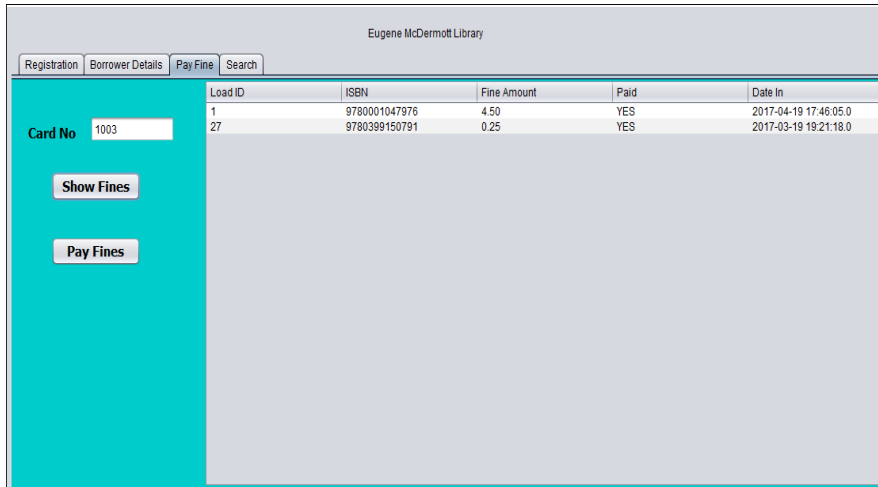
- Please enter Card Number**: Section header
- Card Number**: Text input field with value "1007"
- Show Borrowed Books**: Button
- Active**: Section header
- Active Table**: Table showing active borrows.

Load ID	Card Number	ISBN	Date Out	Due Date	Date In
41	1007	9780006385370	2017-03-19 22:0...	2017-04-02 22:0...	
42	1007	9780028617275	2017-03-19 22:0...	2017-04-02 22:0...	
- Checkin**: Button
- Show History**: Button
- Search & Checkout**: Button
- Calculate Fine**: Button
- History**: Section header
- History Table**: Table showing borrowing history.

Load ID	Card Number	ISBN	Date Out	Due Date	Date In
29	1007	9780061083259	2017-03-19 19:1...	2017-04-02 19:1...	2017-03-19 22:0...
30	1007	9780312971304	2017-03-19 19:1...	2017-04-02 19:1...	2017-03-19 22:0...
31	1007	9780312677900	2017-03-19 19:1...	2017-04-02 19:1...	2017-03-19 22:0...

3. Pay Fine Tab

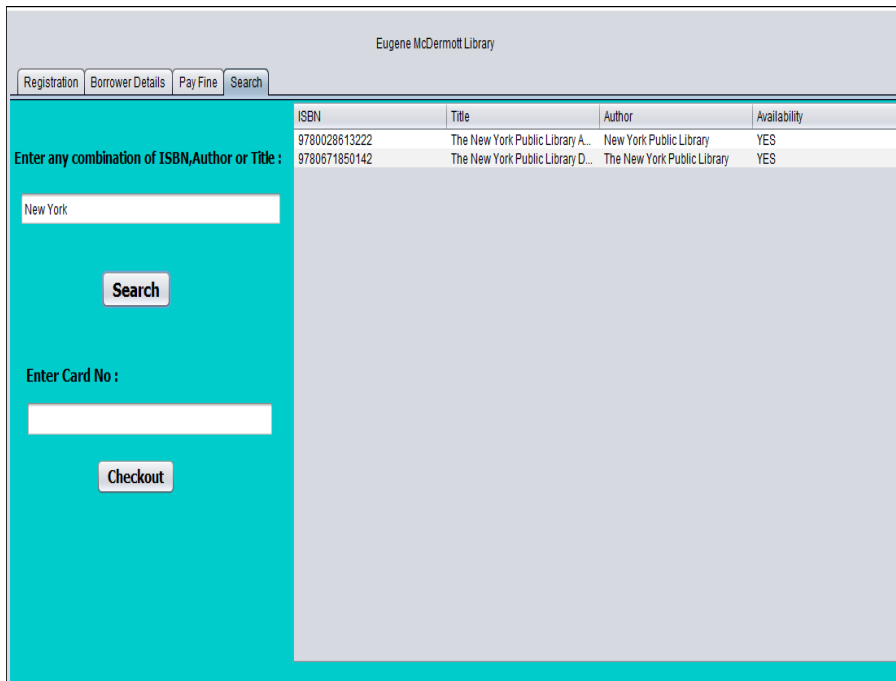
For a given Card No of a registered user this tab provides us with details as to whether the user has books which has exceeded the due date. If so, displays the fine amount to be paid. Also, it provides with the information as to whether the user has paid the fine or not.



Lead ID	ISBN	Fine Amount	Paid	Date In
1	9780001047976	4.50	YES	2017-04-19 17:46:05.0
27	9780399150791	0.25	YES	2017-03-19 19:21:18.0

4. Search Tab

The Search tab provides the librarian with the capability to search for a requested book based on the combination of ISBN, Author or Title as provided by the user. It also provides with the ability to checkout an available book to user.



Enter any combination of ISBN, Author or Title :

New York

Search

Enter Card No :

Checkout

ISBN	Title	Author	Availability
9780028613222	The New York Public Library A...	New York Public Library	YES
9780671850142	The New York Public Library D...	The New York Public Library	YES