System Architecture, Design Decisions & Assumptions

This project is developed and designed in Eclipse IDE Mars Release (4.5.0) and the database management system is handled by MySQL 5.7. The Library Management System Application has MySQL database for database management. The tables used are:

1. BOOK
2. BOOK_AUTHORS
3. AUTHORS
4. BOOK_COPIES
5. LIBRARY_BRANCH
6. BORROWER
7. BOOK_LOANS
8. FINES

The front end is built in JFrame. The functionality of each page is as described below:

Search Page

1. On this page select either one or a combination of ISBN, Book Title or Author. Key in the values and click the Search Button.
2. The values will be populated in the table. Select the desired book and click either the 'Check In' or 'Check Out' buttons.
3. To create a new borrower, click the 'New User' button.
4. To check the fine details, click the 'Fine Details' button.

New User Page

1. Key In all the required values and click the Sign Up button.
2. A card Number will be assigned to the New User.
3. Duplicate Users with same SSN will not be allowed
4. Click the 'Main' button to return to the Search Page.

Fine Page

1. Click the Refresh button before checking the amount.
2. Key in the Card Number to check or pay fine.
3. Click the Main button to return to the Search Page.

Check Out Page

1. Enter the Card No. of the user and click the Checkout button.
2. This will check out the book for the borrower.
3. If the book is already checked out the system will throw an error.
4. A borrower can at a time have only maximum 3 books checked out. If the borrower tries to check out more than 3 books, the system will throw an error.
5. Click the Main button to return to the Search Page.

Check In Page

1. Enter the Card No/First Name or both and click the Search button to receive details of checked out books.
2. Select the book to check in and press the Check in button.
3. Click the Main button to return to the Search Page.