

Design Document

System Architecture, Design Decisions & Assumptions

This project is developed and designed in Python 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
6. BORROWER
7. BOOK_LOANS
8. FINES

The front end is built as Web App using (html, bootstrap, Javascript). 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. The values will be populated in the table.
 - If user enters a word expecting it to be a part of either the author's name or title of the book, the result set would be a list of books with an author or title the contain the given input word.
 - The page would display a message saying "No matching results found" if there are zero books matching the search conditions. The page would display all books irrespective of the availability of the book.
 - The result table contains Index, Title of the book, Book id 'ISBN', Author, Book Status, and availability.
2. Select the desired book 'Check Out' buttons for checkout.

Check In Page

1. Enter the ISBN or Card ID or Name or any combination and click the Search button to receive details of checked out books.
2. The search button would redirect the user to a results page showing a list of all the books

matching the user's search conditions. This page would say "No results found" if there are zero results matching the search conditions.

Add borrower Page

1. Key In all the required values and click the Add button. SSN and Phone number should only be integers.
2. A card Number will be assigned to the New User.
3. The page would throw an error if either the phone is invalid or the ssn entered already exists in the database.
4. Click the 'Go back to search' button to return to the Search Page.

Manage Fine Page

1. Two tabs are available 1) fines 2) Update fines - would list all the unpaid fines in the database. If there are no unpaid fines, the page would say "All dues settled!".
Update fines - Updates the status of all fines.
2. The librarian can set the fine as paid for the books that are returned by the card holder. If a user has a fine amount which is a sum of fine for a returned book and fine for a book not yet returned- On clicking pay, the fine for the returned book is set to be paid.

Assumptions:

1. Only one book exists for every ISBN
3. Only ISBN 10 is used
4. Port 5000 is not used by any other application
5. The machine used to run the application has mysql and python installed.
6. Mysql server is running on local machine on port 3306.
7. Mysql has user='root' with password='2wsx@WSX'