Design document

System Architecture

"Book search" tab:

In the 'book search' section, there is a single search field for the user to enter the ISBN or the title of the book or the author of the book. The user can use a combination of these fields.The result set will be an optimized union of all possible combinations for the input given.However, if the user searches for the ISBN as well as the title or author, the values of title and author are ignored. This because, the search on the ISBN would give into a single result. However, if the user enters more than one ISBN, that will give a resultset of the books with respective ISBNS.

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.

Ex: Entering 'Jackpot baby' will result in a list of almost 170 books whose title/author's name contains baby + books whose title/author's name contains jackpot

However, the result set is optimised by recognising and concatenating the prepositions and conjunctions with the previous and followed word - in input string.
Ex: input - "adventures of tom" will result in a list from searching for "adventures of tom"
And not a union of result sets from querying using "adventures" , "of" and "tom"

The search button would redirect the user to a results page showing a list of all the books matching the user's search conditions. 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.

"Check in" tab:

In the 'Check in' section, the user can search using the ISBN or the card number or the name of the borrower. The user can use a combination of these fields. However, if the user searches for the ISBN, values for the card number and the name are ignored. This because, the search on the ISBN would give into a single result.

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 matching results found" if there are zero results matching the search conditions.

"Add borrower" tab:

SSN and Phone number should only be integers. Sometimes the address entered might exceed more than the allocated space in the database. In such cases, the address is truncated to fit in the database.

The page would throw an error if either the phone is invalid or the ssn entered already exists in the database.

"Manage Fines" tab:

List fines - would list all the unpaid fines in the database.If there are no unpaid fines,the page would say "All dues settled!".

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.

Update fines - Updates the status of all fines.

Assumptions made:

1. Only one book exists for every ISBN
2. Assumes the computer from which the page is being accessed has a working internet connection.
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='libadmin' with password='libadmin'