Design Document for Library Management System

- Search Books -
  - Can search for books by providing an input of multiple ISBN, Book Titles and Authors. The query supports substring matching.
  - It displays ISBN, Book title , Book author(s) and Book availability.
  - Note - I have used 13 digit ISBN here and if a book has multiple authors, they are displayed separately in each row.
- Checking Out Books -
  - Two options were given to implement this and I chose the method where the user can directly give multiple ISBN numbers.
  - An alert will be shown if the user tries to check out a book that's not available and a successful dialog box will be shown if a book is checked out successfully.
  - The dialog box will show the ISBN of selected books which were checked out and which were not. Proper error messages are shown.
  - After entering ISBNs of books, a prompt will be displayed to enter Borrower ID who is checking them out.
  - An alert message is shown if a borrower checks out more than 3 books.
  - A borrower is not allowed to check out books if he has fines to pay.
- Checking In Books -
  - Here, the user can search books based on ISBN, Borrower ID or Borrower Name.
  - User can check in one book by selecting one of the many results.
  - After successful check in, a dialog box with a proper message is displayed.
- Add Borrower -
  - A separate tab opens up when the user clicks on the Add Borrower button. All fields are a must.
  - It has a first name, last name, SSN, address, city, state, phone number.
  - Address, city and state are combined and stored in the database.
  - If a borrower with the same SSN is already present, User will not be able to add a borrower and an alert is shown with an error message.
- Fines -
  - There are two buttons for fines - Update fines and Display fines.

- The update fine button updates/refreshes entries in the FINES table. This is done so that the fine can increase by $0.25 each day. It is updated by calculating the difference between due date and due in if it is returned otherwise due date - today times the per day fine.
  - Pay fine button clears the total fine owed by the borrower. The user has to input the Borrower ID which will then display how much their fine is.

- Schema -
  - The schema is the same as provided in the project description. Some fields like Borrowers first name, last name are combined and stored as a single attribute.
  - Address, city and state are combined as ADDRESS and stored as a single attribute.

- Code -
  - The main.py file has the main foundation code for searching books. AddBorrowers, CheckIn and PayFines are coded separately and integrated with the main file.

Library Management System

Library Management System
Search for books here
Search by ISBN, title, and/or Author(s)

Rose

Search

ISBN	Book Title	Author(s)	Availability	
9780449206614	The Brotherhood Of The Rose	David Morrell	Available	
9780316693257	Roses Are Red (Alex Cross)	James Patterson	Available	
9780446605489	Roses Are Red (Alex Cross)	James Patterson	Available	
9780671793531	A Rose For Her Grave & Ot	Ann Rule	Available	
9780451186362	Rose Madder	Stephen King	Available	
9780670858699	Rose Madder	Stephen King	Available	
9780786890439	The Diary Of Ellen Rimbauer: My	Stephen King	Available	
9780380816798	A Rose In Winter	Kathleen E. Woodiwiss	Available	
9780380844005	A Rose In Winter	Kathleen E. Woodiwiss	Not Available	
9780373250486	Rescuing Rose (Red Dress Ink (I	Isabel Wolff	Available	

Check Out Book   Check In Book   Updates Fines   Pay Fines   Add New Borrower

Search here: Borrower ID, Borrower Name or ISBN

1000

Search

Loan ID	ISBN	Borrower ID	Book Title	
2	9780345386106	1000	Winter Moon	
3	9780156001946	1000	Winter's Tale	

Check In

Pay Fines

Enter Borrower ID

1001

Display Fines

Fine: $4.25

Pay Fine

Add New Borrower

Enter Details

First Name

Last Name

SSN

Street Address

City

State

Phone Number

Add