DESIGN DOCUMENT

OBJECTIVE

Objective of this project is to create a database host application that interfaces with a backend mysql database implementing a Library Management System for librarians.

SYSTEM ARCHITECTURE

System Modules

The following are the project's main modules:

1. Books: In this module, we give a key word to search for books based on ISBN, TITLE and AUTHOR NAME or any of these. Once the books are found user can also check out books from this list if it's currently available.

2. Borrower: Users can create new borrowers by inputting the borrower details like ssn, name, address and phone number and it has been updated in the borrower table.

3. Check in: Users can check in borrowed books and updates the return date with the current date.

4. Fines: In this module, users can update the fines by clicking a refresh button. They can also view the fines that are already paid and the fines to be paid and also update when fines are paid.

DESIGN DECISIONS

Databa Design:

- The database and tables as per the schema provided. Database is created by using the create sql commands.
- Some of the changes that I have made in the provided schema is to include an attribute Availability in the table BOOK to keep track if the book is available or not. The updated schema has been provided at the end of the document.
- The data from the 2 csv files provided are normalized by directly inserting the csv files in the mysql according to corresponding tables and by using ms excel. Mysql database is used for this application.

Front End Design:

Front end design is done with html, css and javascripts. References for html and javascript code for front end design from w3 schools.

Back End Design:

The backend design is done by using php. The data from the html which is the user inputs is received in the form of get or post request methods. Mysql jdbc connector is used to connect the database and query is run by using this data. After all the processing is done, the data is set in the request and dispatched to html so that the result can be displayed in the html page. For many functionalities, I have referred stack overflow.

ASSUMPTIONS

1. There is only one copy of each book that exists in the library.

2. Only ISBN13 has been considered in the entire processing.

LANGUAGES/IDE USED

1. php, html, css and javascript

2. xampp

3. MySQL

4. Apache Server

REQUIREMENTS TO RUN THE APPLICATION

1. Apache and MySQL running on a xampp localhost.

UPDATED SCHEMA

BOOK

Isbn	Title	Available

BOOK_AUTHORS

Author_id	Isbn

AUTHORS

Author_id	Name

BORROWER

Card_id	Ssn	Bname	Address	Phone

BOOK_LOANS

Loan_id	Isbn	Card_id	Date_out	Due_date	Date_in

FINES

Loan_id	Fine_amt	Paid