System architecture for project#1

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The project is using HTML, JavaScript(jQuery), CSS, and PHP to build a library management system. The user of this system is understood to be librarians. The librarian can search for the book, check out the book, check in the book, create a new borrower, and manage fines of the library books.

User interface and development tools

The project uses HTML, CSS as main tools for developing front-end user interface. The JavaScript(jQuery) is used to handle the interaction between the web and user. Moreover, the project used Ajax method to pass the data back and forth between front-end scripts and back-end PHP scripts. The PHP is used to get data from user and perform MySQL queries. I was using MAMP local host with Apache Server installed on the personal machine and did all the testing and development.

Database implementation

The database of this application uses two csv files provided by professor Chris Davis in CS6360 database design class. Books.csv and borrowers.csv files contain all the initial data. To use the data and create my own database schema with better implementation with the application, "create_library_data_processed.sql" file converts the csv file into a database called LIBRARY. The project uses the library. By executing this MySQL file on the server machine, user can

access through the front-end GUI with all the initial data. The schema of implemented database is according to the table schema Professor Chris Davis provided.

Detailed Design Decisions

Except the preparation files, the application contains three .html files, one .js file, and six .php files. Three html files include all the front-end pages. User will start with index.html which contains the main search function. From the main search page, user can perform a search with text matching and go to creating new borrower page or manage fine page. newBorrower.html and fine.html pages contain the function respectively.

The JavaScript file contains the main search Ajax call and all the user interface interactions. There are six PHP files. Each one of them performs a specified action in the database which includes connection to the database, searching, creating new borrowers, checking out a book, checking in a book, and updating the fine table.

Assumptions

The library raw data is given, and user is able to search either ISBN, Author name, or the book title on the web page. The application is not mounted on an actual cloud server, thus, user must be able to set up a local host to use the application.