

LiteLib

CS340

University of Tennessee at Knoxville

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Project Information

- Team Name: LiteLib
- Team Members:
 - Alan Saucer
 - Dhvani Patel
 - Pedro Storch
 - Lohith Gangula

Section 1: Introduction

- LiteLib is a personal library application that allows users to keep track of media they own
- The motivation for this project is to create an affordable and effective tool for managing media
- The approach was to simply be able to scan and read the book data through a barcode and be able to manage the virtual library
- Overall goals and expectations from the project were achieved

Section 2: Customer Value

- Primary customers are teachers and students seeking an affordable and effective tool to manage their media
- Existing tools are charging around \$9/month for an online library application, LiteLib offers it for free
- By prioritizing affordability and user control over data, we aim to provide a valuable solution
- Success will be measured by the ease of use for customers, validated through user testing and feedback sessions

Section 3: Technology

Server/Client Architecture

- Server is written in [Node.js](#)
 - Can be run on any machine (including cloud servers) with Node.js installed.
 - Can also run as a Native Application for Windows, MacOS, or Linux with [electron](#). This provides a kiosk-like format.
 - Uses [express](#) to serve web pages. To show data we used [ejs](#). The database is created with a modified version of [quick.db](#).
- The client is any web browser
 - Can be installed as a PWA (Progressive Web App) on any device.
 - Fully responsive design for mobile and desktop via [Bootstrap 5](#).

Section 3: Technology (cont.)

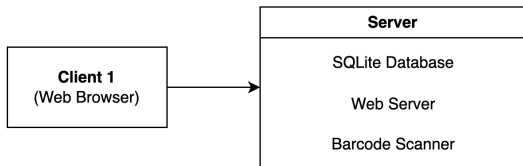


Figure 1: Example of Server/Client Architecture



➞ Sign-In Page

Username:

Password:

➞ Sign In

Figure 2: Sign In Page



Welcome Admin

Books

Users

Dashboard

Settings

Logout

GitHub

Figure 3: Home Page for Admin Users

Screenshots (cont.)



Figure 4: Touchbar for MacOS Server

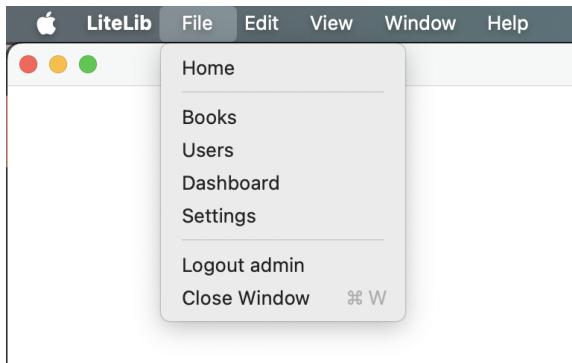


Figure 5: Menu for MacOS Server

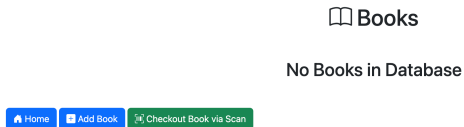



Figure 6: When Books Database is Empty

Screenshots (cont.)

Adding New Book



Book Title:

Author:

Year: Genre:

ISBN: ISBN10:

Copies:

[Home](#) [Cancel](#) [Save](#)

Figure 7: Adding New Book to Database

Screenshots (cont.)

Added "Harry Potter and the Sorcerer's Stone" ✕

Books

| ID | Name | Author | Year | Genre | ISBN | ISBN10 | Copies | Actions |
|----|---------------------------------------|--------------|------|---------|---------------|------------|--------|--|
| 1 | Harry Potter and the Sorcerer's Stone | J.K. Rowling | 1999 | Fantasy | 9780590353427 | 059035342X | 0 / 10 | 📖 Checkout 👤 View 0 Users ✎ Edit |




[🏠 Home](#) [📖 Add Book](#) [📷 Checkout Book via Scan](#)

Figure 8: New Status of Books Page

Adding New User

Username:

Name:

Role:
 Basic 
 Advanced 
 Admin 

Password:

[Home](#) [Cancel](#) [Save](#)

Figure 9: Add New User

User Data

| ID | Username | Name | Role | Action |
|----|----------|---------------|----------|---|
| 1 | admin | Admin | admin | Edit View 0 Books |
| 2 | advanced | Advanced User | advanced | Edit View 0 Books |
| 3 | student | John Doe | basic | Edit View 1 Books |

[Home](#) [Add User](#)

Figure 10: User Data Page



Welcome John Doe

Books

Logout

Figure 11: Home Page for Basic User



Welcome Advanced User


Books

Settings

Logout

GitHub


Figure 12: Home Page for Advanced User


 Books

| ID | Name | Author | Year | Genre | ISBN | ISBN10 | Copies | Actions |
|----|---------------------------------------|--------------|------|---------|---------------|------------|--------|---|
| 1 | Harry Potter and the Sorcerer's Stone | J.K. Rowling | 1999 | Fantasy | 9780590353427 | 059035342X | 0 / 10 | Checkout View 0 Users |

[Home](#) [Checkout Book via Scan](#)

Figure 13: Books Page for Users

 **Checkout Book**

 **Confirm Book Details**

Book Title:

Author:

Year: Genre:


ISBN: ISBN10:

[Home](#) [Cancel](#) [Checkout](#)

Figure 14: Checkout Page

Checkout "Harry Potter and the Sorcerer's Stone" successful. ✕

Books

| ID | Name | Author | Year | Genre | ISBN | ISBN10 | Copies | Actions |
|----|---------------------------------------|--------------|------|---------|---------------|------------|--------|--|
| 1 | Harry Potter and the Sorcerer's Stone | J.K. Rowling | 1999 | Fantasy | 9780590353427 | 059035342X | 1 / 10 |  Return |

[Home](#) [Checkout Book via Scan](#)

Figure 15: Books Page after Checkout

Settings

Edit Your Personal Information

Username:

Name:

New Password:

 Home

 Cancel

 Save

Figure 16: Settings Page

Screenshots (cont.)

Admin Dashboard

User Checked Out Books

| ID | Username | Name | Role | Checked Out Books | Actions |
|----|----------|---------------|----------|-------------------|---|
| 1 | admin | Admin | admin | 0 | Edit View 0 Books |
| 2 | advanced | Advanced User | advanced | 0 | Edit View 0 Books |
| 3 | student | John Doe | basic | 1 | Edit View 1 Books |

Checkout Limit

Hint: -1 for no limit

[Save](#)

Download Library

[Download Library \(xlsx\)](#) [Download Books \(csv\)](#) [Download Users \(csv\)](#)

Upload Library (Experimental)

[Upload Library \(xlsx\)](#) [Upload Library \(csv\)](#)

Server Information

IP Address: 216.96.195.121
Port Number: 3001
Platform: darwin-arm64
Version: 1.0.1
Electron Version: 25.9.8
CPU: 6
Uptime: 116.3373655 Seconds
Memory: 18.5989 / 18.710528 MB

[Home](#)

Figure 17: Admin Dashboard Page

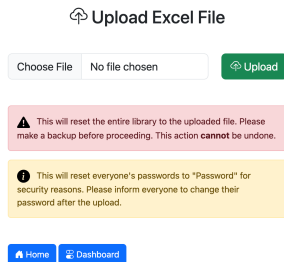


Figure 18: Upload Page for Excel

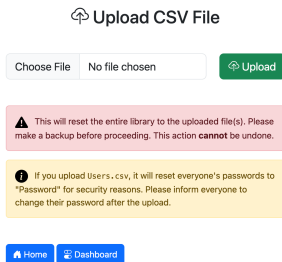


Figure 19: Upload Page for CSV

Section 3: Technology (cont.)

Changes from Status Reports

- Added two SQLite databases: User and Book data
- Added a simple sign-in page (no registration)
- Added a UI for adding, editing, and deleting users and books
- Added different three types of users (Basic, Advanced, and Admin)
- Added a simple checkout system for users to borrow and return books
- Added download/upload database data as CSV/Excel files
- Added Bootstrap Icons for better UI/UX design
- Added barcode scanning for adding and checking out books
- Added Checkout Limit for users
- Added electron for native desktop applications

Section 3: Technology (cont.)

Testing

For testing, we tested all edge cases manually before each pull request before merging into the main branch.

Even though we didn't have automated tests, we were able to catch most bugs during manual testing.

Testing (cont.)

We conducted manual testing for various scenarios, including:

| Test Category | Results |
|---|---|
| User Authentication | Successfully validated login and logout. |
| Adding New Books and User | Updated database without errors. |
| Checking out and returning books | Successfully pair databases with checkout objects. |
| Downloading and uploading database data | Successfully convert data into database following security protocols. |
| Barcode scanning | Successfully read ISBN numbers and pull data from public API. |
| Other Edge Cases | Tested and handled gracefully with alerts and doesn't hang. |

Section 4: Team

| | Alan | Dhwani | Lohith | Pedro |
|-----------------|------|--------|--------|-------|
| Project Manager | X | | | |
| Frontend | X | X | | X |
| Backend | X | | X | |

- Alan set up the SQL database, added electron support, and made sure that the team stayed on track.
- Lohith created the barcode scanner.
- Dhwani and Pedro created web pages.

Section 5: Project Management

- Most goals were met, but some could not be completed in time for some sprints
 - Bugs from packages forced us to use other packages and find workarounds
 - Some features had to be abandoned due to one-semester time restraint, and it being a collaborative project

Section 6: Reflection

- What went well:
 - Branching, Sprints, weekly meetings, web pages, simplicity
- What did not go well:
 - Collaborative sprints, waiting on features, bugs, and testing
- Team management - Alan's long brewed plan
- The final project was a success. We met our goals of a full product and even added features on top of that.

Any Questions?

- Any questions about the project before we get to the demo?