Assignment

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Assignment Topic: Library Management

Submitted to

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Library Management System

Abstract

The Library Management System is a website designed to modernize libraries by automating book handling, reservations, and resource management. Users can search for items, book study rooms, see what they've borrowed, unlimited downloads and get automatic alerts. Librarians get better tools to manage stock. To understand user needs, we surveyed 10 library users. In there, we create a survey questionnaire to ask the individuals according to collect the background data. The results showed: 90% want no limits on book searching, 80% need reminders when items are due back, 50% prefer free access for everyone and 70% prefer a simpler booking process. By replacing manual processes with an intuitive digital interface, this system reduces administrative burdens, minimizes overdue incidents, and enhances accessibility. These needs directly guided our development plan (SRS), leading to features like live availability checks, automatic fine calculation, and online resource access. This digital system replaces paper-based work, reducing staff workload, cutting down on late returns, and making the library more accessible. The plan ensures the system works well and is secure. Future upgrades could include mobile apps and AI book suggestions.

Introduction

1. Introduction

We're building a digital library system to replace paper records and chaotic processes. Libraries today waste time on manual tasks - our solution automates everything from book searches to fine calculations.

Purpose & Significance

- Students lose books, staff drown in paperwork, and everyone hates overdue fines.
- The student wants free access for everyone.
- Unlimited downloads for everyone.

Role	Needs
Students	Find books fast, reserve study spaces, avoid fines
Faculty	Access journals, place course reserves, manage research materials
Staff	Track inventory, process returns, generate reports
Librarians	Monitor system health, update collections, assist users

Table: Need based Table from the survey results.

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2. Data Collection Process (Emphasized Section)

Method that we use:

- One to one surveys.
- Physical questionnaires at library entrances.
- Quick interviews during peak hours.
- Target participants for different perspective.

Target Audience:

10 total participants:

- 8 students
- 1 administrative member
- 1 Librarian

Our questionnaire representation:

1. Are you a: ☐ Student ☐ Faculty ☐ Staff ☐ Other: _____
2. What do you usually use the library for? ☐ Borrowing/returning books ☐ Searching for books ☐ Checking availability ☐ Reserving study rooms ☐ Accessing digital resources ☐ Other: _____
3. What features would you like in the website? ☐ Search books by title/author/subject

☐ Online book reservation ☐ View borrowed books & due dates ☐ Overdue fine calculator ☐ Notifications/reminders ☐ Access to digital library ☐ Chat or support feature
4. How often do you use the current library system (if any)? ☐ Daily ☐ Weekly ☐ Monthly ☐ Rarely ☐ Never
5. Any suggestions or problems you face with the current system?

Our Key Findings:

User Distribution:

Students: 80%

Faculty: 10%

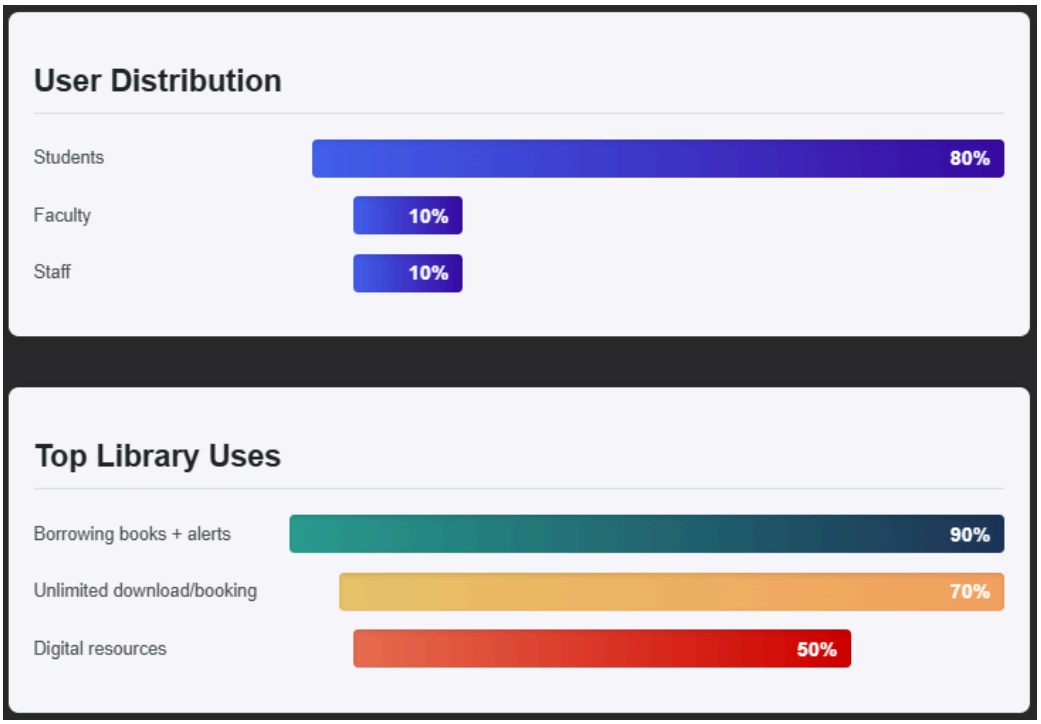
Staff: 10%

Top Library Uses:

Borrowing books with alert: 90%

Unlimited download and booking: 70%

Digital resources: 50%



3. System Requirements

- Functional Requirements:

  Book Search: Filter by title/author/subject (90% demand)

  Reservation Hub: Books with duration view (70% needed)

  Notification Engine: Notification or Live update for due dates (80% request)

  Downloads: Download unlimited for each student

  Fine System: Auto-calculate penalties (50% priority)

- Non-Functional Requirements:

  Speed: Load the website fast. Predicted results in <2 seconds

  Security: Role-based access (students vs. staff).

  Reliability: 99% uptime during exam seasons.

  Easy to use: Better UI design for a better user experience.

  Mobile-Friendly: Works on all devices[optional]

4. Use Case Analysis

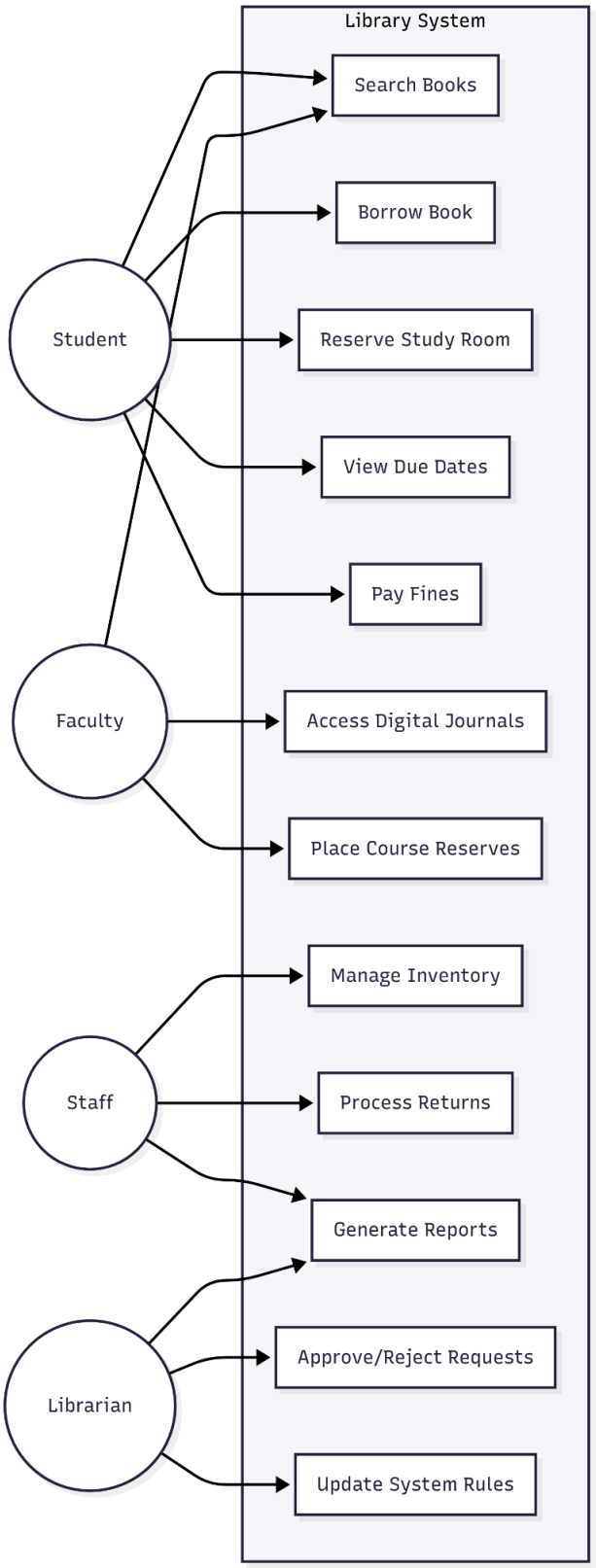


Figure: Use case for our system.

5. Data Utilization in Design

- UI/UX designs for initial representation:

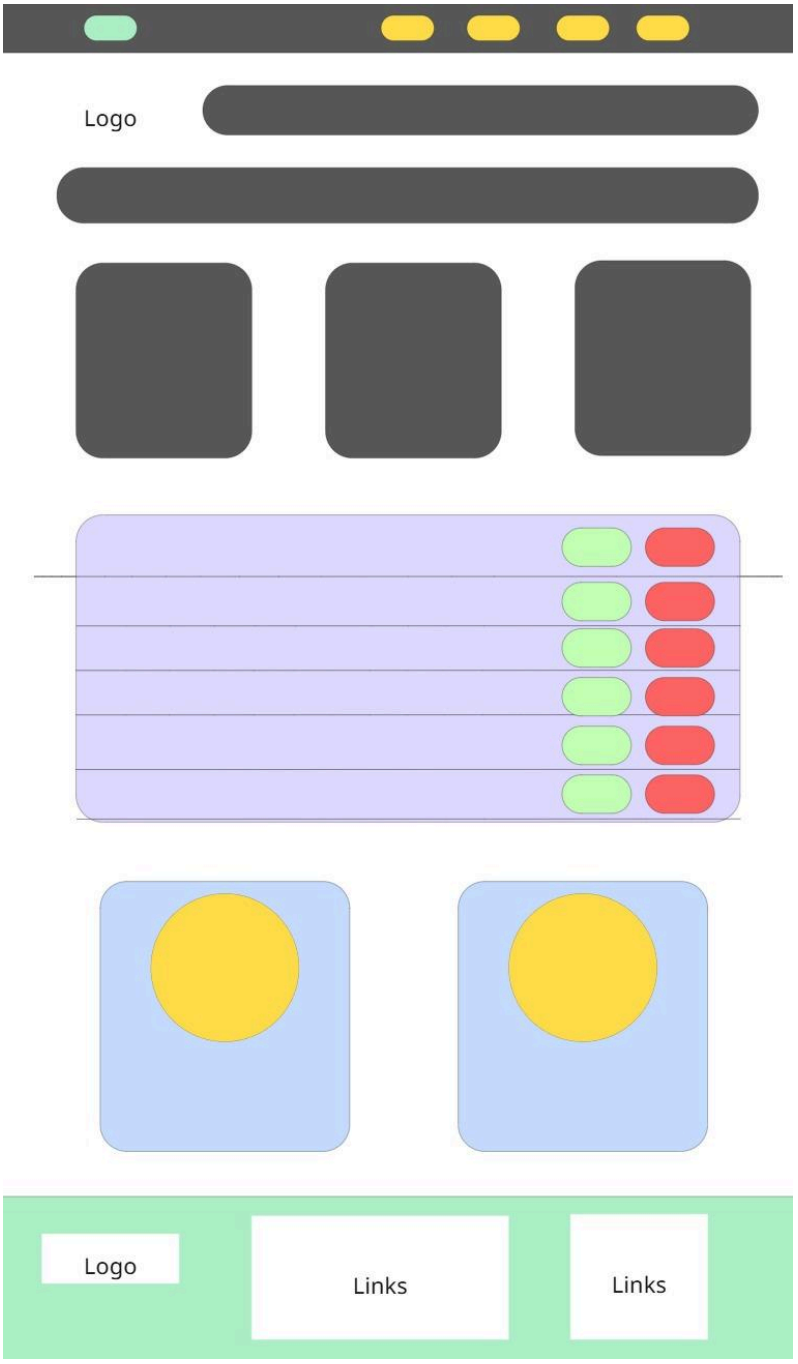


Figure: Initial UX design for our website.

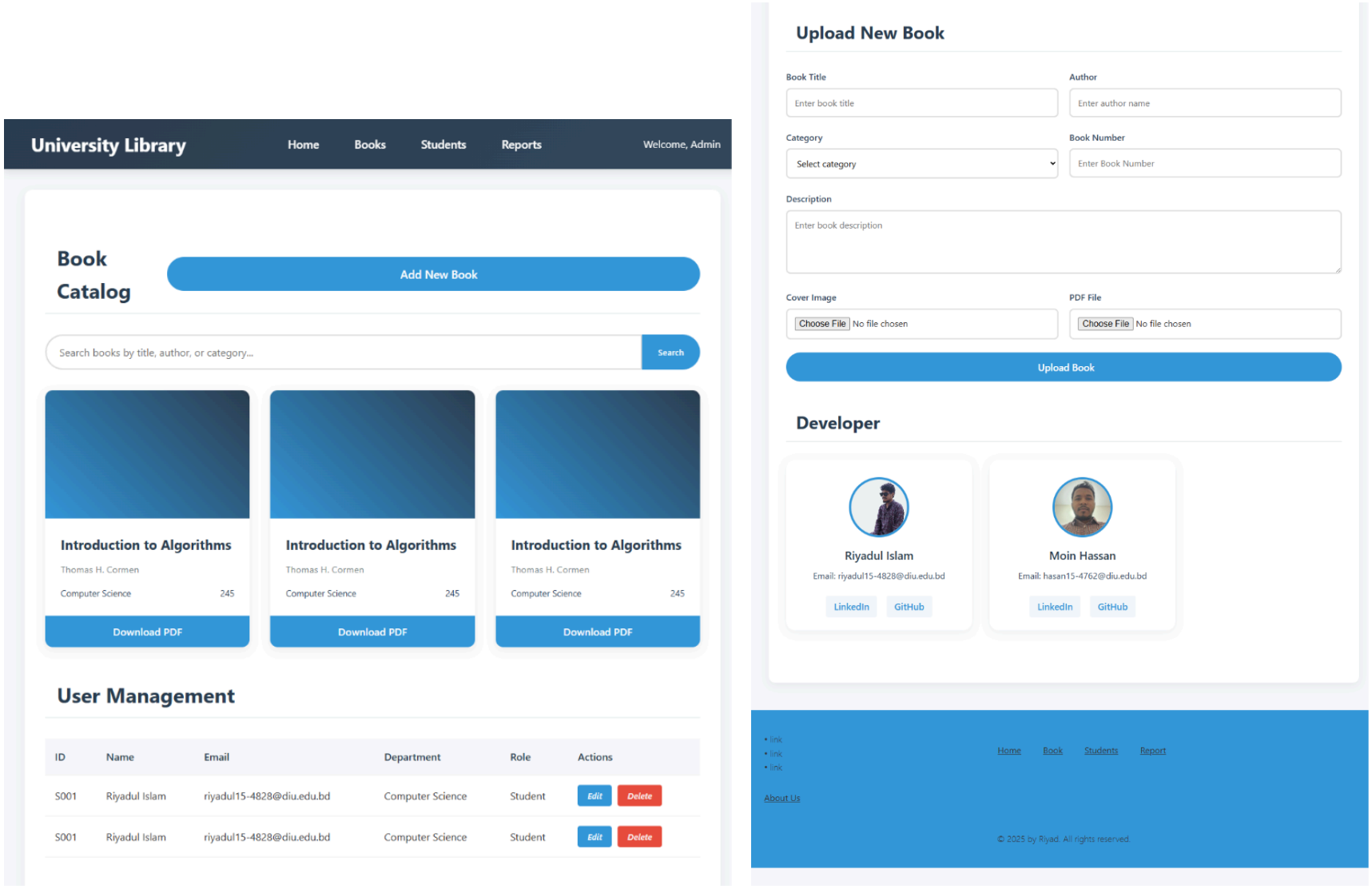


Figure: Initial UI design for our website.

- Database structure

  We did not actually think about the database, but we visualize the database like this:

LOANS TABLE	BOOKS TABLE	USERS TABLE
- UserID - Name - Role - Email - Phone	- BookID - Title - Author - Status - Location	- LoanID - UserID - BookID - DueDate - Returned

- For our system architecture considerations we use HTML, CSS and JavaScript for building, designing and validation checks for our initial face of website.

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6. Challenges & Limitations

- Data Collection and Implement Challenges
  - Only 10 responses (many users "too busy" to participate)
  - Faculty underrepresented (only 1 respondent)
  - Student-heavy data → Faculty needs like journal access might be underdeveloped
  - Tech-savvy users overrepresented → Simplicity concerns for older staff
  - Can't integrate with campus ID cards (budget constraints)
  - SMS notifications require third party paid service

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7. Conclusion & Future Considerations

The Library Management System successfully modernizes traditional library operations by automating key processes such as book tracking, reservations, and resource management. By addressing critical user needs instant search capabilities, due date reminders, and streamlined room booking the system enhances efficiency, reduces administrative workload, and improves accessibility for both students and librarians. The Software Requirements Specification (SRS) ensured a structured development approach, balancing functional workflows with non-functional requirements like security and responsiveness.

Development Site

Appendix

Our Demo Website Preview: riyad959.github.io/Library/

Our Ground Work for Background Study:

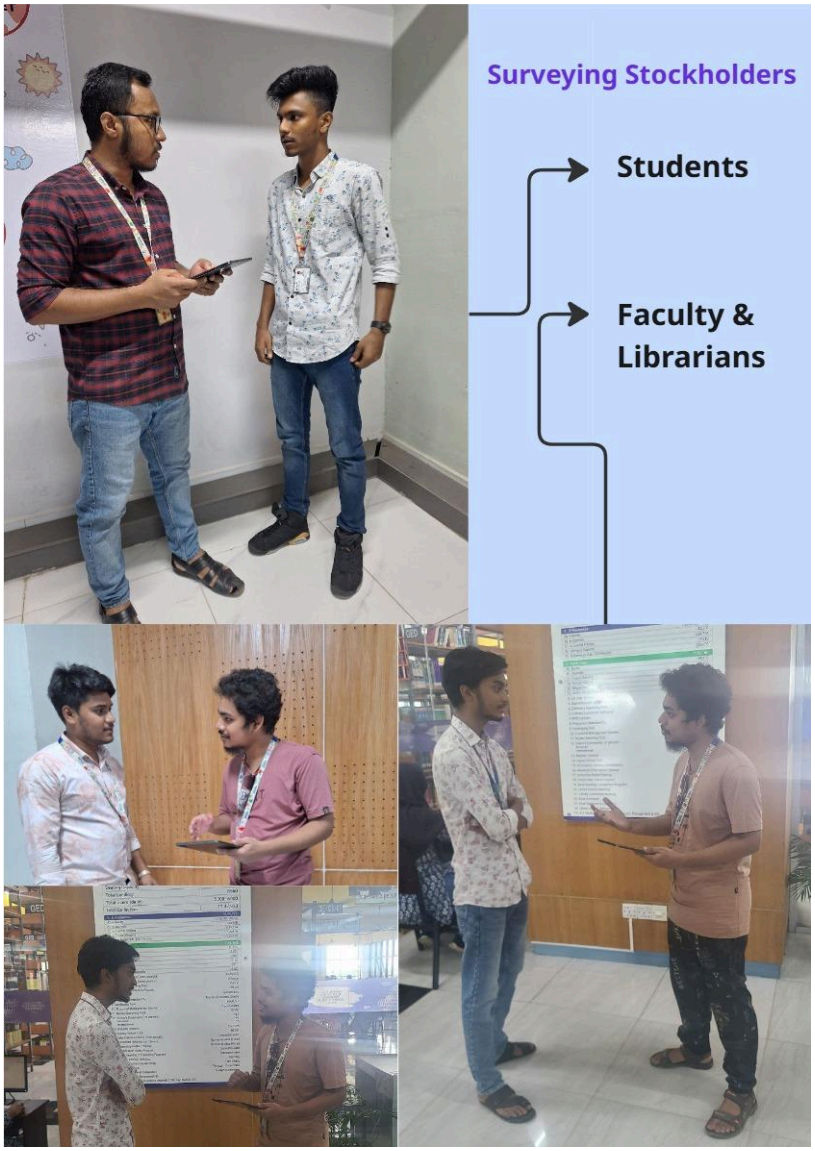

Figure: Questioning our Stakeholders for the quarry.

N.B. We use various blogs, github & AI tools for the initial planning phase, questionnaire.