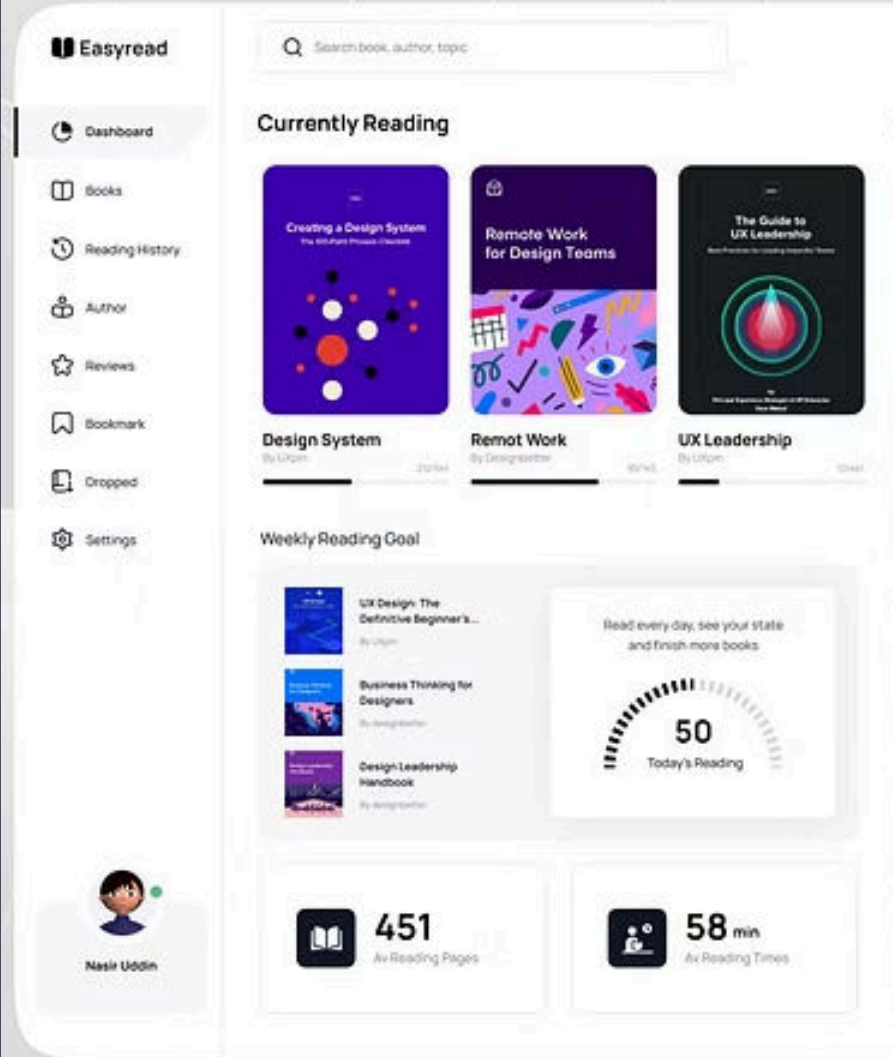


I. Introduction

1. Project Overview

BookMates

is a web application that allows users to exchange books they have read. Users can post books they are offering, specify the books they wish to receive, and arrange exchanges with other users. The platform includes user profiles with a rating system, live chat functionality, and geolocation-based book post feeds.



2. Objectives

1

Creating a user-friendly interface for book exchanges.

2

To facilitate seamless book exchange between users.

3

Enabling users to post books they want to offer for exchange & to specify books they wish to receive in exchange.

4

Implementing a user rating system for reputation.

5

Integrating a live chat feature for users who have agreed to exchange.

6

Building a secure platform with authentication and authorization mechanisms.

II. Funtional Requirements



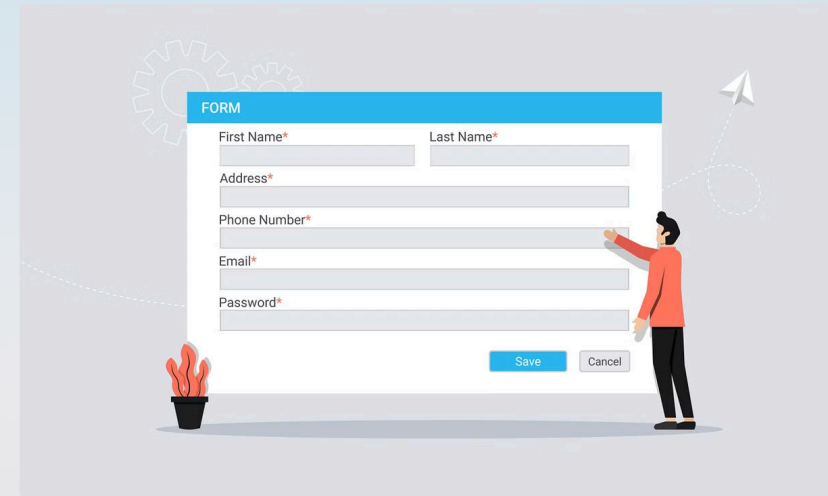
1. User Registration and Authentication

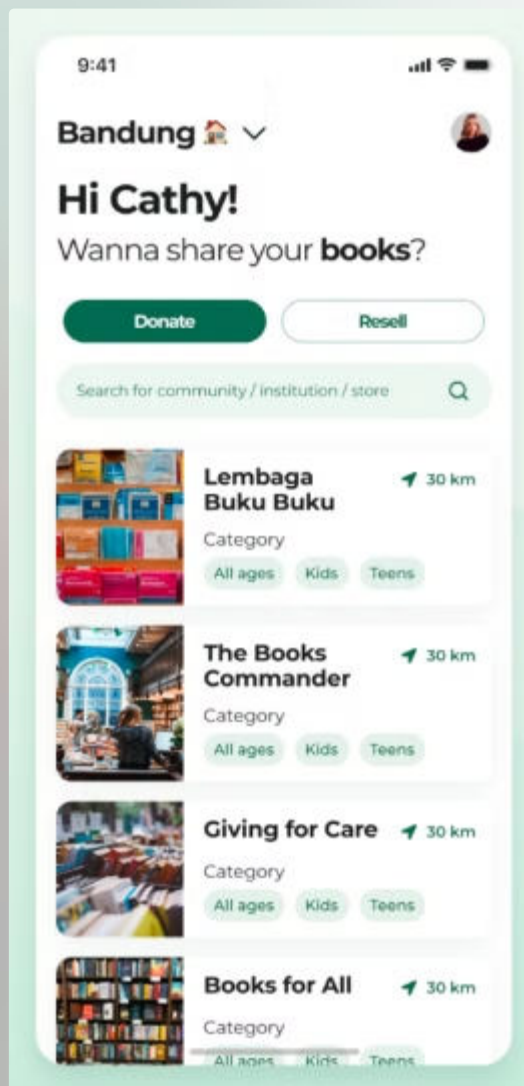
- Users must be able to register with an email and password, and basic profile information.
- Users must be able to log in and log out.



2. User Profile

- Users can view and edit their profile information.
- Profile includes username, profile picture, and a rating system based on exchanges, contact details, and a list of books owned.





3. Book Posting (Listing)

Users can add a new book post to their book listing with the following information:

- Title
- Author
- Description
- Cover image (upload functionality)
- Genre
- Book they wish to receive in exchange

Users must be able to edit or delete book posts.

Book post can have comments from other users (Not sure if this is necessary)



4. Book Search & Filter

- Users must be able to search & filter books by title, author or genre.



5. Book Exchange Process

- Users can send an exchange request to another user if they have the book the latter wishes to receive.
- Users can view incoming and outgoing exchange requests. and they must be able to accept or decline exchange requests.
- Notification system for exchange requests and updates.



6. Messaging System (Live Chat)

- Users must be able to communicate with each other through a messaging system to arrange exchanges.
- Implement live chat functionality for users who have agreed to make an exchange.
- Use a third-party library or API for chat implementation (e.g., Pusher, Firebase).



8. Geolocation-based Feed

- Display book posts to users based on their geolocation proximity from each other.
- Implement geolocation features using available APIs (e.g., Google Maps API).



7. Reviews & Ratings

- Users must be able to rate and review other users after completing an exchange (Quality & condition of the book etc...).
- Ratings are displayed on user profiles.



9. Admin Panel

- Admin can manage users, book posts, and exchange requests.
 - Admin can create and delete book genres.
- Admin can view and generate reports (Optional).



III. Non-Functional Requirements

Performance

- The application should handle concurrent users efficiently.
- The response time for page loads and API requests should be minimal.

Usability

- The application should have an intuitive, user-friendly, and easy to navigate user interface.
- Provide a responsive design compatible with desktops, tablets, and mobile devices.



Security

- Users' data must be encrypted.
- Use Laravel Sanctum for secure authentication.

IV. User Stories



1. As a user, I want to register an account so that I can list and exchange books.
2. As a user, I want to log in and log out securely so that my account remains private.
3. As a user, I want to list my books so that others can see what I'm offering for exchange.
4. As a user, I want to search for books by various criteria so that I can find specific books I am interested in.
5. As a user, I want to request an exchange with another user so that I can obtain books I want.
6. As a user, I want to communicate with other users so that we can arrange the exchange details.
7. As a user, I want to rate and review my exchange partners so that I can provide feedback on the exchange experience.
8. As an admin, I want to be able to manage users, book posts, and exchange requests.
9. As an admin, I want to be able to create and delete book genres.
10. As an admin, I want to be able to view and generate reports (Optional).



V. Technical Specifications

1

Backend

Framework: Laravel

Authentication: Laravel Sanctum

Database: MySQL

API Documentation: Laravel-request-docs

2

Frontend

Framework: VueJS, TailwindCSS

HTTP Client: Axios

Routing: Vue Router

State Management: Vuex

3

Tools & Libraries

API Testing: Postman

Live Chat: Pusher/Firebase or similar

Geolocation: Google Maps API or similar

4

API Endpoints

POST /api/register: Register a new user.

POST /api/login: Authenticate a user.

GET /api/books: Get a list of books.

POST /api/books: Add a new book.

PUT /api/books/{id}: Update a book.

DELETE /api/books/{id}: Delete a book.

POST /api/exchange-requests: Request a book exchange.

POST /api/ratings: Add a rating





VI. Implementation Plan

1. Milestones

Week 1: Project setup, user registration, and authentication:

- Setup project repository.
- Configure Laravel and Vue.js environments.
 - Implement user registration, login, and profile management.

Week 3-4: Search and Filter Functionality, Exchange request system and user rating:

- Implement book search and filter features.
 - Implement book exchange request & rating functionalities.

Week 7-8: Frontend & API consumption:

- Create the Frontend UI
- Consume API endpoints (CRUD)

Week 2: Book Listing and Management:

- Implement book listing, editing, and deletion features.

Week 5-6: Live chat integration and geolocation-based book feed:

- Implement live chat messaging system.
- Implement geolocation-based book feed.

Week 9: Admin panel and final testing:

- Implement admin panel for managing users, books & book genres
- Conduct a holistic testing



2. Testing

- Unit Testing: PHPUnit



3. Deployment

- Hosting: Self-host/Docker image/Docker container
- CI/CD: GitHub Actions or similar



VII. Conclusion

Our web app BookMates aims to provide a seamless and efficient way for users to exchange books. With features like user ratings, live chat, and geolocation-based feeds, the platform seeks to foster a community of book enthusiasts and facilitate easy exchanges.