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Course: Mini Project

Course Code: CSEP23506

Semester: V

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Domain	Title of the Project
Full Stack	BookMates

SYNOPSIS

1. Abstract:

The Book Exchange Platform is a web-based system that enables users to list, request, and exchange books with others. The platform promotes knowledge sharing, reduces costs of purchasing new books, and encourages sustainability by reusing resources. It provides features such as user registration, book listing, swap requests, exchange tracking, and ratings/reviews to build trust within the community.

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2. Introduction:

Reading books is one of the most effective ways to gain knowledge, but buying new books frequently can be expensive. Many readers keep old books unused on their shelves, while others search for the same titles. A Book Exchange Platform bridges this gap by allowing users to exchange books directly or through a credit/point system. Such platforms foster community engagement, reduce waste, and make learning more accessible.

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3. Problem Statement:

Currently, there is no widely adopted, structured system for individuals, especially students and avid readers—to exchange books easily and securely. Manual exchanges through social media groups or personal networks lack features like trust verification, tracking, and proper matching. Therefore, a digital platform is needed to simplify the process of exchanging books, ensuring convenience, transparency, and trustworthiness.

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4. Objectives:

- To design and develop a web-based application for book exchange.
- To allow users to add, browse, and request books.
- To provide secure login and user management.
- To implement notifications for swap requests and confirmations.
- To track exchange history for accountability.
- To promote sustainable and affordable reading habits.

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5. Literature Survey / Existing System:

i. ***Recommending Books to be Exchanged Online in the Absence of Wish Lists (EasyEx)*** **by M. S. Pera and Y.-K. Ng (2018)** introduces a recommendation-based system that predicts user interests and enables exchanges without requiring wish lists.

ii. ***Reading Notes as Media to Enrich Communications between Reader and Book*** **by S. Yoshida, M. Takahara, I. Tanev, and K. Shimohara (2020)** explores how annotations and reading notes can serve as interactive media to strengthen engagement between readers and books.

iii. ***Books Tracking and Review Application*** **by S. A. Jebamani, R. Punitha, N. Rajesh, T. Kavin, and K. U. A. Abdul Kalam (2022)** presents an application that tracks book collections and integrates review-sharing features for structured management.

iv. ***A Survey on Reader's Society: New Social Network of Book Swapping Platform*** **by K. Sudharson, H. A. Prasad, and S. Smriti (2023)** highlights the drawbacks of unorganized book swapping through social media groups and proposes a dedicated social-network style platform.

v. ***OrderBookVis: A Visualization Approach for Comparing Order Books from Centralized Crypto Exchanges*** **by A. Jobst, D. Atzberger, R. Henker, W. Scheibel, and J. Döllner (2023)** develops a visualization framework for analyzing exchange order books, showing how complex data can be simplified with visual tools.

vi. ***Extracting Aspect Sentiment from Users' Book Reviews for Recommendation*** **by Y. Cui, P. Zhou, K. Li, B. Seng, and H. Cao (2024)** proposes sentiment analysis of book reviews to improve personalized book recommendations.

- **Gap Identified:**
  Existing approaches either depend on explicit wish lists, lack automation and visualization, or fail to combine sentiment analysis with exchange mechanisms. A unified platform is needed that integrates automated recommendation, structured management, sentiment insights, community interaction, and clear visualization to enable seamless and intelligent book exchange.

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6. System Design:

Modules:

(a) **User Module** – Registration, login, profile management.
(b) **Book Module** – Add, browse, search, and filter books.
(c) **Exchange Module** – Send/receive swap requests, accept/reject.
(d) **Notification Module** – Real-time alerts for requests and approvals.
(e) **Review Module** – Ratings and reviews after exchange.
(f) **Admin Module** – Manage users, books, and monitor system.

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7. Hardware and Software Requirements:

Hardware:

- PC or Laptop for development and server hosting.

Software:

- **Frontend:** React.js + Tailwind CSS
- **Backend:** Node.js + Express.js
- **Database:** MongoDB / Firebase
- **3D Tools:** Spline 3D, Sketchfab (for home & login pages only)
- **Version Control & Collaboration:** Git (local version control), GitHub (remote repository & team collaboration)

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8. Expected Output:

- Users can successfully register/login.
- Users can add and browse books.
- Swap requests can be initiated and accepted/rejected.
- Exchange status is updated (pending, approved, completed).
- Users can rate and review others after an exchange.
- Admin can monitor system activity.

9. Conclusions:

The Book Exchange Platform provides an efficient, secure, and user-friendly solution for book lovers to exchange books. It not only reduces the cost of reading but also promotes sustainability by encouraging reuse. The system ensures transparency through tracking, builds trust via ratings, and creates a community-driven culture of knowledge sharing.

10. References:

a. M. S. Pera and Y.-K. Ng, "Recommending Books to be Exchanged Online in the Absence of Wish Lists (EasyEx)," *J. Assoc. Inf. Sci. Technol.*, vol. 69, no. 4, pp. 541–552, 2018. Available: https://students.cs.byu.edu/~ng/papers/EasyEx_v4.pdf

b. S. Yoshida, M. Takahara, I. Tanev, and K. Shimohara, "Reading Notes as Media to Enrich Communications between Reader and Book," in *Proc. IEEE Asia-Pacific Conf. on Computer Science and Data Engineering (CSDE)*, 2020, pp. 1–6.

c. S. A. Jebamani, R. Punitha, N. Rajesh, T. Kavin, and K. U. A. Abdul Kalam, "Books Tracking and Review Application," *Dept. of IT, Sri Sai Ram Engineering College and Sri Sai Ram Institute of Technology, Chennai, India*, 2022.

d. K. Sudharson, H. A. Prasad, and S. Smriti, "A Survey on Reader's Society: New Social Network of Book Swapping Platform," in *Proc. IEEE Int. Students' Conf. on Electrical, Electronics and Computer Science (SCEECS)*, 2023, pp. 1–6.

e. A. Jobst, D. Atzberger, R. Henker, W. Scheibel, and J. Döllner, "OrderBookVis: A Visualization Approach for Comparing Order Books from Centralized Crypto Exchanges," in *Proc. IEEE Int. Conf. on Blockchain and Cryptocurrency (ICBC)*, 2023, pp. 1–9.

f. Y. Cui, P. Zhou, K. Li, B. Seng, and H. Cao, "Extracting Aspect Sentiment from Users' Book Reviews for Recommendation," in *Proc. 2024 Int. Conf. on Computational Linguistics and Natural Language Processing (CLNLP)*, 2024, pp. 1–6.

Status: Approved ☐ **Rejected** ☐ **Needs Revision** ☐

Remarks:

Name & Signature of the Guide (with date):