



Read Rover: Your gateway to affordable reading

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Project Guide
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Outline

- Introduction
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- Problem statement
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Introduction

- ❑ Book lovers struggle to find affordable, quality used books in a convenient way.
- ❑ Traditional used bookstores have limited inventory and require physical visits, while mainstream online retailers often focus on new books at higher price points.
- ❑ Additionally, selling used books can be time-consuming and inefficient for individuals.
- ❑ There is a need for an accessible online platform that connects readers with affordable second-hand books while providing book owners an easy way to rehome their collections.

Introduction

➤ Objectives:

- To provide a budget-friendly platform for buying, selling, and donating pre-owned books.
- To promote sustainable reading by encouraging the reuse of books with AI-powered recommendations.
- To support literacy and community development through book donations.
- To enhance reader engagement using sentiment analysis model.

Literature Survey of the existing system

Sr. No.	Title	Author(s)	Year	Outcomes	Methodology	Result
1.	[1] Collaborative Filtering-Based Book Recommendation System	Dheeraj Parmar and Pankaj Raghuvanshi.	2025	The study concludes that ALS is a more scalable, accurate, and robust technique for building collaborative filtering-based book recommendation systems, especially when working with large-scale, sparse datasets.	A comparative study of Alternating Least Squares (ALS) and Singular Value Decomposition (SVD) on the Book-Crossing dataset.	ALS (RMSE: 3.9901) was significantly more accurate than SVD (RMSE: 5.9029)
2.	[2] Systematic Literature Review on Recommender Systems	Ilham Saifudin and Triyanna Widyaningtyas	2024	The paper identifies key trends, challenges, and popular techniques in recommender system research. It concludes that the model-based collaborative filtering method is a prominent approach that can effectively minimize common problems such as cold start, data sparsity, and scalability.	A Systematic Literature Review (SLR) of 72 research articles published between 2019 and 2023.	Collaborative Filtering is the most common approach (46 studies), and accuracy is the most significant problem addressed (65%).

Literature Survey of the existing system

Sr. No.	Title	Author(s)	Year	Outcomes	Methodology	Result
3.	[3] Integrating AI into Library Systems	Ian Tai and Souvick Ghosh.	2024	The paper concludes that AI has vast potential to transform and improve library services by automating tasks and enhancing user experience. To realize this potential, it is crucial to address the significant challenges related to cost, technical skills, and ethical concerns through continued research and development.	This work is a perspective paper that uses an integrative literature review approach to synthesize findings from 43 articles concerning the application of artificial intelligence in library systems.	Key AI application areas include recommendation systems, information retrieval (e.g., chatbots), and Optical Character Recognition (OCR). Major barriers to adoption are the lack of skilled personnel and infrastructure

Limitations of existing systems

From the literature review of existing systems, we find that :

- **High Costs for Books** – Most existing platforms sell new books at high prices, making reading less affordable for students and budget-conscious users.
- **Lack of Donation & Recycling Features** – Few platforms allow users to donate books or promote sustainability, limiting community and eco-friendly initiatives.
- **Cluttered or Complex UI/UX** – Many platforms have confusing navigation, poor design, and excessive ads, which negatively impact user experience.

Limitations of existing systems

- **Poor Sustainability & Recycling Support-** Many systems don't encourage reuse of books, leading to waste.. No eco-friendly initiative to promote sustainable reading habits.
- **Dataset Underutilization-** Book data (genres, ratings, reviews) is often underused, missing opportunities for smarter search, filtering, and recommendations.

Problem statement

- Existing platforms mainly sell new books at high prices, making reading less affordable and accessible, especially for students and low-income readers.
- Current systems do not support book donations or recycling initiatives and lack AI-driven personalized recommendations, making it difficult for users to discover relevant pre-owned books.
- Many platforms have cluttered interfaces, require time-consuming manual book listing, and offer limited or unreliable payment options, resulting in a frustrating user experience.

System Design

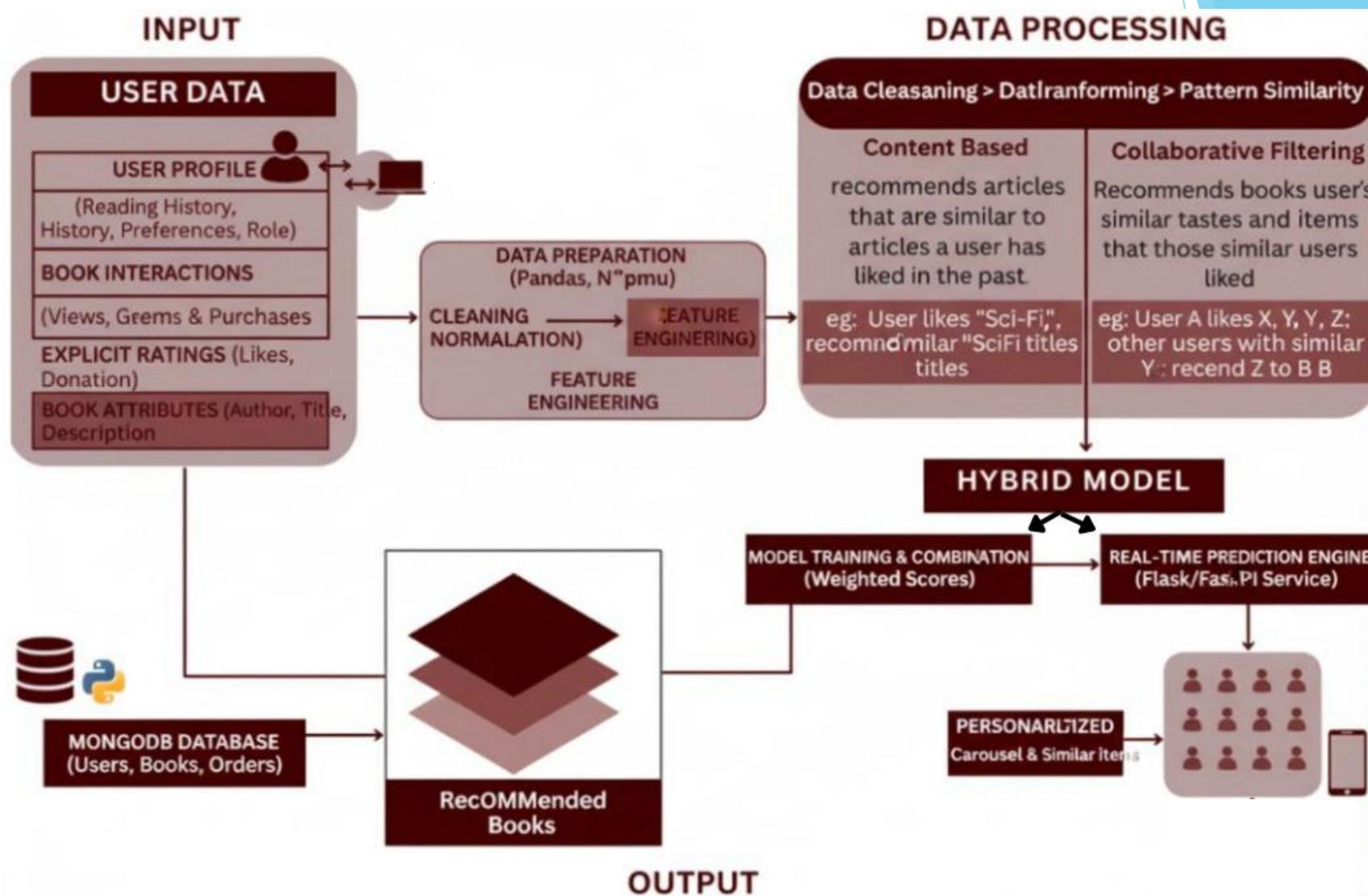


Fig 1: System Design for Hybrid Model

Technologies

- **Frontend Development:**
 - i. HTML, CSS
 - ii. Python 3.11.0
 - iii. JavaScript
- **Backend Development:**
 - i. Django 4.2.5
 - ii. MongoDB
- **AI/ML:** scikit-learn, pandas, NumPy → recommendation engine
Hybrid approach → user history + similarity search

Implementation

The screenshot shows the 'Sentiment' section of the ReadRover website. At the top, there is a navigation bar with links for Home, Buy, Free, Sell, Donate, Sentiment (which is underlined), and Cart (0). Below the navigation bar is a purple header with the title 'Find Books by Mood' and a subtitle 'Discover books that match your current sentiment'. In the center, the text 'How are you feeling today?' is displayed above a grid of mood categories. Each category is represented by an emoji icon and a corresponding label: Happy (smiling face emoji), Sad (frowning face emoji), Motivational (bulb emoji), Romantic (red heart emoji), Adventurous (book emoji), and Neutral (open book emoji).

ReadRover

Home Buy Free Sell Donate Sentiment Cart 0

Find Books by Mood

Discover books that match your current sentiment

How are you feeling today?

Happy

Sad

Motivational

Romantic

Adventurous

Neutral

Implementation

Why Choose ReadRover?



Buy Books

Discover curated books at great prices



Free Books

Access donated books at zero cost



Sell Your Books

List your books with OCR auto-fill



Donate

Give back to the reading community

Implementation

The screenshot shows a web application interface for "ReadRover". At the top, there is a navigation bar with the logo "ReadRover" on the left and links for "Home", "Buy", "Free", "Sell", "Donate" (which is underlined), "Sentiment", and "Cart" (with a notification badge showing "0") on the right.

The main content area has a purple header with the title "Donate Books" and the subtitle "Share your books with the community for free". Below this, there is a form for uploading a book cover image. It includes a placeholder text "Book Cover Image (Optional OCR)" and a file input field labeled "Choose File" with the message "No file chosen". There is also a link "Upload image for auto-fill (optional)".

Implementation

Book Cover Image (Optional OCR)

No file chosen

Upload image for auto-fill (optional)

Book Title *

Author *

Description

Book Mood/Sentiment

Conclusion

- Developed a platform for affordable, sustainable, and community-driven reading.
- Future work: Mobile app, blockchain for donation tracking, multilingual support, gamification.
- Final note: Bridges gap between unused books and communities in need → promotes literacy & sustainability.

References

□ Research Papers-

Smith, R. – Tesseract OCR Engine (ICDAR).

Koren, Y. – Matrix Factorization in Recommender Systems (IEEE).

Burke, R. – Hybrid Recommender Systems (UMUAI).

□ Technical Docs-

FastAPI Docs, PostgreSQL FTS, Redis Docs, OpenCV Docs, Tesseract OCR,
Sentence-Transformers, FAISS.

□ APIs & External-

Open Library API, Razorpay API, Stripe API, ReportLab Toolkit.

□ General

Nielsen, J. – Usability Engineering. OWASP – Top 10 Security Risks.

Thank You...!!