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Bookgram: Book exchange system with a Hybrid recommendation engine.

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ABSTRACT

Despite the rise of digital media, there is still a strong preference for printed books due to their unique tactile experience. However, traditional bookstores often have limited space and selection, making it difficult for readers to discover new books that match their interests. Additionally, the high cost of new books can limit access to literature and educational materials. To address these issues, there is a need for a solution that promotes sustainability, expands access to printed books, and encourages engagement with reading.

To address the problem of developing a book exchange system with a hybrid recommendation engine, a technical approach was implemented. The book exchange system was designed with user-friendly interfaces to facilitate user exchanges, including features for book management, search, and messaging. A recommendation engine was also developed using a Long Short-Term Memory model to predict users' book genre preferences based on their input. To enhance the accuracy and diversity of book recommendations, the recommendation engine employed a hybrid approach. Various technologies, including user interfaces, machine learning models, and recommendation algorithms, were integrated to implement the solution.

The developed book exchange system with a hybrid recommendation engine was evaluated using various key metrics, including accuracy, precision, recall, F1-score, and AUC. The system performed well, with high accuracy (0.97), precision, recall, and F1-score scores indicating its efficacy in providing relevant recommendations. Additionally, the AUC score further supported the system's ability to distinguish between positive and negative recommendations effectively. Overall, these findings suggest that the system can offer accurate and appropriate book recommendations to users based on their interests and preferences.

Keywords: Recommendation Systems, Hybrid Recommendation Systems, Machine Learning, Data Science, Long Short-Term Memory, Recurrent Neural Network

Subject Descriptors:

- Information systems → Information retrieval → Retrieval tasks and goals → Recommender systems
- Computing methodologies → Machine learning → Deep learning → Recurrent neural networks → LSTM
- Human-centered computing → User interfaces