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Book Exchange System with a Hybrid Recommendation Engine

Authors : Nilki Upathissa, Torin Wirasinghe

Abstract : This solution addresses the challenges faced by traditional bookstores and the limitations of digital media, striking a balance between the tactile experience of printed books and the convenience of modern technology. The book exchange system offers a sustainable alternative, empowering users to access a diverse range of books while promoting community engagement. The user-friendly interfaces incorporated into the book exchange system ensure a seamless and enjoyable experience for users. Intuitive features for book management, search, and messaging facilitate effortless exchanges and interactions between users. By streamlining the process, the system encourages readers to explore new books aligned with their interests, enhancing the overall reading experience. Central to the system's success is the hybrid recommendation engine, which leverages advanced technologies such as Long Short-Term Memory (LSTM) models. By analyzing user input, the engine accurately predicts genre preferences, enabling personalized book recommendations. The hybrid approach integrates multiple technologies, including user interfaces, machine learning models, and recommendation algorithms, to ensure the accuracy and diversity of the recommendations. The evaluation of the book exchange system with the hybrid recommendation engine demonstrated exceptional performance across key metrics. The high accuracy score of 0.97 highlights the system's ability to provide relevant recommendations, enhancing users' chances of discovering books that resonate with their interests. The commendable precision, recall, and F1score scores further validate the system's efficacy in offering appropriate book suggestions. Additionally, the curve classifications substantiate the system's effectiveness in distinguishing positive and negative recommendations. This metric provides confidence in the system's ability to navigate the vast landscape of book choices and deliver recommendations that align with users' preferences. Furthermore, the implementation of this book exchange system with a hybrid recommendation engine has the potential to revolutionize the way readers interact with printed books. By facilitating book exchanges and providing personalized recommendations, the system encourages a sense of community and exploration within the reading community. Moreover, the emphasis on sustainability aligns with the growing global consciousness towards eco-friendly practices. With its robust technical approach and promising evaluation results, this solution paves the way for a more inclusive, accessible, and enjoyable reading experience for book lovers worldwide. In conclusion, the developed book exchange system with a hybrid recommendation engine represents a progressive solution to the challenges faced by traditional bookstores and the limitations of digital media. By promoting sustainability, widening access to printed books, and fostering engagement with reading, this system addresses the evolving needs of book enthusiasts. The integration of user-friendly interfaces, advanced machine learning models, and recommendation algorithms ensure accurate and diverse book recommendations, enriching the reading experience for users.

Keywords : recommendation systems, hybrid recommendation systems, machine learning, data science, long short-term memory, recurrent neural network
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