



Library Recommendation System

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| <p>CC License CC-BY-NC-SA 4.0</p> | <p style="text-align: center;">Abstract</p> <p>Nowadays, the majority of online book retailers utilize their own recommendation engines to suggest books to their customers. Nonetheless, the majority of the times, the books that are suggested to users are irrelevant. This system aims to create a new strategy by utilizing the content-based filtering capability. This technique will result in a more refined and useful recommendation for the user. For testing reasons, a web-based prototype will be developed, and the system will be taught by feeding it data. Users will benefit from our recommendation system by having easier access to library materials and reduced resource waste.</p> <p>Keyword: Recommendation system, Library, Books recommendation, Machine learning.</p> |
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1. Introduction:

Recommender systems are information filtering systems that deal with the problem of information overload by picking out relevant information pieces from a vast amount of dynamically created content depending on the user's preferences, interests, or observed behavior toward the item. A recommender system can predict whether or not a particular user will favor an item based on their profile. Systems that generate suggestions are beneficial to service providers as well as users. They reduce the transaction costs related to finding and selecting goods while making purchases online. Recommendation systems have also been demonstrated to improve the standard and procedure of decision-making [1]. Recommender systems have applications in many different areas, such as recommending films, goods, books, music, and other reading material [2].

There is a substantial collection of books, periodicals, and research papers on every topic available in the libraries of each college within the university. There is a lot of uncertainty among students every time they go to the library to check out a book since they don't know how to look for and choose books. Additionally, even after spending a great deal of time selecting literature, students still struggle to make a decision from the vast array of options. Additionally, this leads to the waste of library resources. A suggestion system becomes necessary in order to solve this issue. This paper proposes android based application for library recommendation system.

2. Related Work:

The following section presents literature review based on recommendation system:

Zhi Hui Wang [16] proposed a book recommendation algorithm based on collaborative filtering and interest. Interest of the book itself is an important measurement index, including the number of searches, borrowing time, borrowing interval, and renewal times. Through the analysis of MAE and RMSE experiments, the results showed that the method proposed converges faster than traditional method.

Arush Gandhi [17] provided the running model of

the recommendation systems that is used in the web book searching domain and help the user to get the best book of their interest. As there are thousands of books of the same genre, all the readers are very confused about which book they should read first.

Shivam Goswamy[18] suggested fast and simple book recommendations method which help user to select right books based on their choice. In this system collaborative filtering was employed.

Dhanashri Wadikar [19] proposed a subject-based books recommendation platform which used Convolutional Neural Network (CNN) for recommending books. The proposed recommender system will give its users, the ability to view and search books and using CNN it will list the highly purchased and top rated books based on the subject name given as the input.

E. Uko Okon [20] designed and developed recommender systems as in e-commerce today, contents available for users to explore were overwhelming because an average ecommerce website is about seventy per cent (70%) more than a physical store in total number of users and items. Hence, the need to filter, prioritize and efficiently deliver relevant information raised. This system used object-oriented analysis and design methodology (OOADM), improved collaborative filtering algorithm and an efficient quick sort algorithm to solve these problems. From the results, the speed and scalability of book recommendation was improved with a performance record obtained within the range of ninety (90) to ninety-five (95) percent using the root mean square error (RMSE) of several recommendations obtained from the system.

3. Objectives:

1. To provide personalized book recommendations to students based on their interests, reading history, and preferences, ultimately enhancing their library experience.
2. To design an intuitive user interface for students to interact with the recommendation system.
3. To implement recommendation algorithms and data analytics to generate book suggestions.
4. To integrate user feedback mechanisms to improve recommendations over time.
5. To design system with voice assistance facility for person with physical disability.

4. Methodology:

Predicting the responses of users to options is a broad category of Web applications. Such type of service is referred as a recommendation system. The following are two excellent instances of recommendation systems:

1. Providing news stories to users of online newspapers based on an estimation of their interests.
2. Presenting recommendations to online shoppers from an online merchant based on their previous purchases and/or product searches.

Many technologies are employed by recommendation systems. These systems can be divided into two major categories.

- Content-based systems look at the suggested items' attributes. For example, if a Netflix subscriber has if a Netflix customer has seen a lot of cowboy films, suggest a film that falls under the "cowboy" genre category in the database.
- Items are recommended by collaborative filtering algorithms based on user and/or item similarity metrics. The products that comparable users have chosen are the ones that are suggested to a user. Several technologies are used in commendation systems.

The proposed Android based Library Book Recommendation System will include the following features

- User authentication and profile management
- Book search and detailed book information display
- User history tracking and analysis
- Personalized book recommendations based on user behavior
- Admin panel for managing books, users, and recommendations

Functional Requirements-

User Authentication and Profile Management:

1. Users can register and log in using their credentials.

Available online at: <https://jazindia.com>

2. Users can edit their profile information and reset passwords

Book Management:

1. Users can search for books based on various criteria such as title, author, genre, and keywords.
2. Users can view detailed information about each book, including the summary, author details, and availability status.

Recommendation System:

1. The system analyzes user reading history and preferences to suggest relevant books.
2. Recommendations are based on genres, authors, and similar users' preferences.

User Interaction:

1. Users can add books to their reading lists and mark books as read.
2. Users receive notifications for new book arrivals, recommendations, and upcoming events.

Admin Panel:

Admins can add new books to the database with details such as title, author, genre, and availability status. Admins can manage user accounts, view user activity, and resolve user issues. Admins can analyze system performance and generate reports.

5. Conclusion:

The Library Book Recommendation System aims to create an enriching and personalized experience for library users while assisting library staff in managing resources effectively. By implementing the outlined requirements and features, the system will contribute significantly to the promotion of reading culture and user satisfaction within the library community.

6. Future Scope

Proposed system will be deployed on any server. It will contain facility of sending message to the users on new arrival of books.

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