Book Recommendation System

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1. Introduction

The amount of knowledge available today, particularly online, is expanding quickly. Finding the information you need gets harder. Such issues are the focus of recommendation systems. They enable instant access to pertinent information without the need for manual web searches. As a result, a lot of websites today use these systems to market and sell their goods. Many products, like music, movies, books can be recommended to a consumer based on the person's online shop or social profile, browsing history, browsing activity, and other online behaviors. Using such tools, online stores are expanding their sales.

2. Motivation

A recommender system is a system which tries to solve the problem of selecting an item over a large set of products. These systems are used to a great extent by many big service providers like Amazon, Netflix, Youtube etc to help the users make some personalized choices. It tries to predict the most preferred recommendation by analyzing the choices made by the user and makes its decisions accordingly. It is expected to work as per the needs and choices of the users to find a suitable book to read over a large collection of books. The success of many such book recommendation platforms like Kindle, Goodreads depends on the type of choices presented to the user and it becomes beneficial for both the producers(in terms of money making) and the consumers(get some better content to read).

3. Related Works

[1] In 2010 Choi et.al. proposed RS based on HYRED, a hybrid algorithm using both content and collaborative filtering they used altered Pearson Coefficient based Collaborative filtering and distance-to-boundary (DTB) Content filtering.

[2] Kurmashov et al. in their paper[1] tried to propose a book recommendation service by taking inputs of the preference like the most favorite genre and ratings on different books to further narrow down the space of search for recommendations while a user logs into the system.

[3] In 2016 Mathew et.al. proposed a system that saves details of books purchased by the user. From these Book contents and ratings, a hybrid algorithm using collaborative filtering, content-based filtering and association rule generates book recommendations.

[4] In 2021, Sarma, Mittra, Hossain proposed a clustering-based book recommendation system that uses different approaches, including collaborative, hybrid, content-based, knowledge-based, and utility-based filtering.

[5] In 2022, Mishra, Asthana tried to outline the limitations of the content and the collaborative based filtering and proposed an effective solution in this regard. While content filtering works on the traditional methods, the hybrid filtering tries to combine them and employs a collaborative networking approach, which compares the results with a wider audience and produces accurate results.

4. Proposed Idea, Novelty, Algorithms, Evaluations

1. After going through the various research papers, it came to the conclusion most of them used collaborative filtering and content based filtering and combined it to produce a hybrid model, where sometimes it could happen that the same book could appear in different categories which makes recommendations less useful. This happened because some of the genres were closely related and the items appeared in both of the genres.
2. We would like to design the system in a manner that the user-ratings for a book could be categorized based on its genre, age groups of users, people reviews etc, so that there would be no overlapping between the recommendations for a particular category, and the user receives better results.
3. We would implement the user based recommendation system by finding the k-similar users using K-Nearest neighbor(KNN) technique to obtain some correlation between the active and the other k-users, other item-based recommendations could be implemented as per the requirements.
4. We present a work on the collaborative filtering method, implementing the user and item based recommendation system, where we try to do the correlation on the unlabeled data and make the recommendation quality and the speed of getting recommendations better.
5. However, in the beginning and for the new users, there wouldn't be enough required data which will lead to cold-start issues and so to avoid that we can have some user preferences based on which the books will be recommended.

5. Contributions:

Each member of our group has read at least one research paper and then summarised their findings, which were discussed to determine what else can be done in this area to provide better services. After a lot of discussion and ideation, the proposed idea was written along with the other components with the equal contribution of all the members.

6. References :

[1] Choi, S.H., Jeong, Y.S. and Jeong, M.K. (2010). A Hybrid Recommendation Method with Reduced Data for Large-Scale Application. IEEE Transactions on Systems, Man and Cybernetics-Part C: Applications and Reviews, Vol. 40, No.5, September 2010.

[2] Nursultan Kurmoshov, Konstantin Latuta, Abay Nussipbekov. Online Book Recommender System Conference: 2015 Twelve International Conference on Electronics Computer and Computation (ICECCO)

[3] Mathew, P., Kuriakose, B. And Hegde, V. (2016). Book Recommendation System through content based and collaborative filtering method. Proceedings of International Conference on Data Mining and Advanced Computing (SAPIENCE)

[4] Dhiman Sarma,Tanni Mittra, Mohammad Shahadat Hossain. Personalized Book Recommendation System using Machine Learning Algorithm. (IJACSA) International Journal of Advanced Computer Science and Applications,Vol.12, No.1,2021 Pages 212 - 219

[5] Himanshu Mishra, Ashish Asthana. Book Recommendation System. International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056 Volume: 09 Issue: 05 | May 2022 Pages 2953 - 2959