BOOK RECOMMENDATION WITH E-LIBRARY

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ABSTRACT: Internet services often recommend content to users in order to maintain the interaction. Recommendation system plays a significant role in formulating and producing a series of recommendations based on users' behavior. Surprisingly, user-generated scoring known as ratings is the main raw material to learn the pattern of favorable content of each user.

Keywords: Data Science, Python, Frontend.

I.   INTRODUCTION

Recommendation System becomes a crucial tool in Internet services rapidly, many internet-media companies deployed the system as part of the service [1]. YouTube [2] and Netflix [3] are the examples of the websites that rely on recommendation system to feed favorable contents specifically to every user that previously expressing good impression by giving rate to satisfying contents.

This research discusses how an information like preferable book recommendation is engineered by using series of data science methods

II.   RELATED WORKS

Large-amount datasets Movielens and GoodBooks-10k often utilized in recommendation. system researches. Acquiring thousands records of users, items, and ratings make Movielens and Goodbooks-10k able to satisfy public dataset utilization in developing prototype of recommendation system.

Content-based Recommendation Algorithm The content-based recommendation algorithm is the earliest recommendation algorithm, which analyzes the objects of users that have played according to the historical behavior data. The commonly used learning algorithms include k-Nearest Neighbor.

III.   CHARACTERISTICS

1.   Personalization:

Tailor book recommendations to each user's reading preferences, history, and behavior.

2.   Content-Based Recommendations:

Recommend books based on their content, genre, author, and writing style to match users' individual tastes.

3.   Collaborative Filtering:

Utilize collaborative filtering algorithms to suggest books based on the preferences of users with similar reading habits.

4.   Hybrid Recommendation:

Combine different recommendation techniques, such as content-based and collaborative filtering, for more accurate suggestions.

5.   Machine Learning Algorithms:

Implement machine learning models for predicting user preferences and refining recommendations over time.

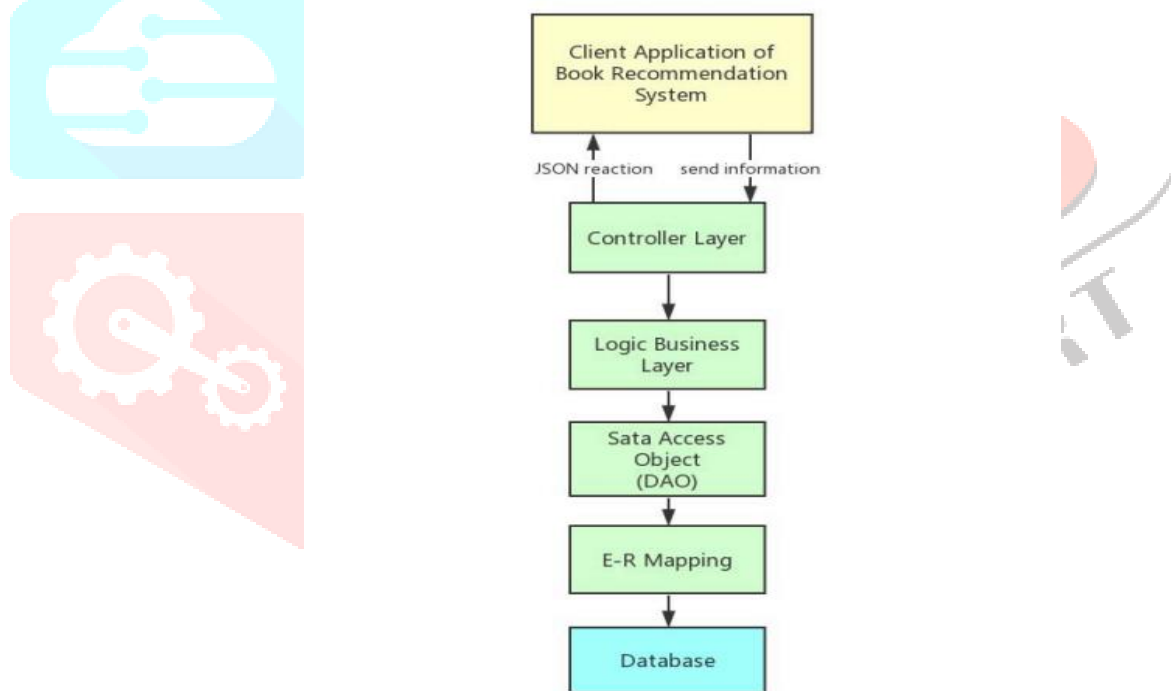### IV.   CLIENT APPLICATION

Figure 1. System structure diagram

1.   Controller Layer:

The controller layer is a key part of the Model-View-Controller (MVC) architectural pattern commonly used in software development.

2.   Logic Business Layer:

The business logic layer is a crucial component of a software application that handles the core functionality and processing of the system. It acts as an intermediary between the presentation layer (user interface) and the data layer.

3.   Sata Access Object (DAO):

A Data Access Object (DAO) is a design pattern used in software development to abstract and encapsulate the interaction with a data source or database.

4.   E R Mapping:

"ER mapping" could refer to different concepts depending on the context. One possibility is that it's an abbreviation for "Entity-Relationship Mapping," which is typically associated with database design and modelling.

5.   Database:

A database is a structured collection of data organized for efficient retrieval, storage, and management.
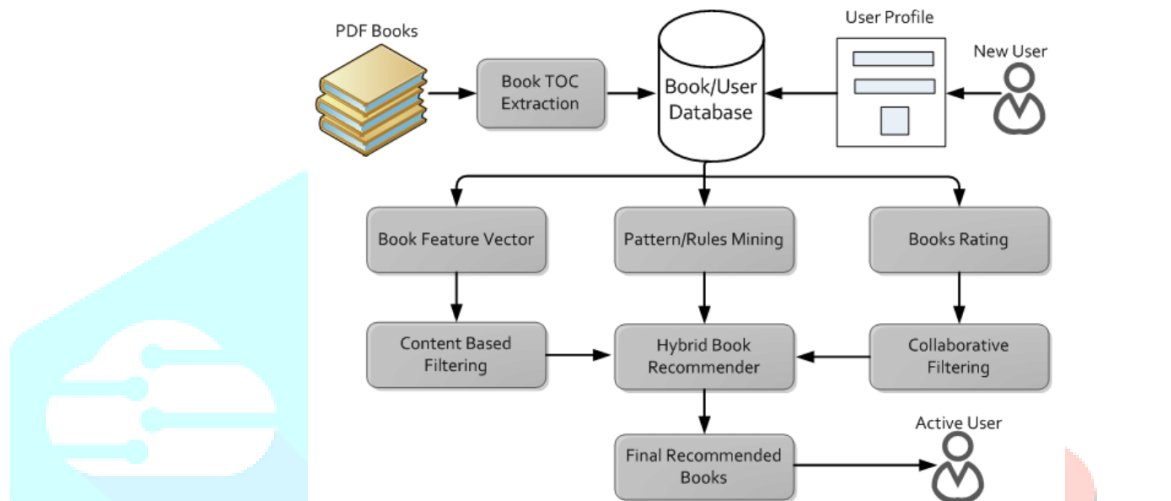
V. BOOK RECOMMENDATION ARCHITECTURE

Figure 2. .Book recommendation architecture

The system is divided into two parts. One is the android mobile app. The other is the back-end server. By the wireless communication technique, the interaction between mobile app and back-end server is achieved successfully, which means the system can match books with requirements in the back-end server and the recommendation results can be shown on the main page of this app.

VI. CHALLENGES OF SYSTEM

1. Diverse User Preferences:

Users have diverse tastes and interests when it comes to reading. The system needs to account for different genres, authors, and reading levels.

2. Content Discovery:

Ensuring that users discover new and relevant books they might not have encountered through traditional means can be a challenge.

3. Seasonal and Trend-Based Recommendations:

Recommending books based on seasonal events, trends, or current events requires accurate temporal and contextual data.

4. Implicit Feedback:

Users may not actively rate or review books. Therefore, relying solely on explicit feedback may not capture the full extent of user preferences.

5. Overfitting and Serendipity:
Striking the right balance between personalized recommendations and introducing users to diverse and serendipitous choices is a challenge. Over personalization can lead to filter bubbles.

VII. CONCLUSION

This paper is created under the circumstance where the research of the availability of technology and the Internet in extra-curricular activities   are increasing rapidly and recommendation systems.
We introduce the Wide & Deep model into the field of book recommendation system and realize the personalized recommendation algorithm.
The experimental results show that the accuracy of our book recommendation model is significantly better than traditional recommendation algorithms and hybrid recommendation algorithms.

VIII. REFERENCES

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