**Personalized Book Recommendations Using User Reading Habits**

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**Topic:**

Personalized Book Recommendations Using User Reading Habits

**Business Problem:**

Enhance user experience on a book recommendation platform by providing personalized book suggestions based on user reading history and preferences.

**Datasets:**

1. **Goodreads Dataset:**

* Contains information about books, user ratings, and reviews.
* Goodreads Dataset on Kaggle - https://www.kaggle.com/datasets/zygmunt/goodbooks-10k

1. **Book-Crossing Dataset:**

* Includes user ratings and information about books and authors.
* Book-Crossing Dataset on Kaggle - https://www.kaggle.com/datasets/ruchi798/bookcrossing-dataset

**Methods:**

1. **Collaborative Filtering:** 
   * Utilize user-item interaction data to recommend books based on similar user preferences.
2. **Content-Based Filtering:**
   * Recommend books similar to those the user has read based on book attributes (e.g., genre, author).
3. **Hybrid Recommendation Systems:**
   * Combine collaborative and content-based filtering to improve recommendation accuracy.
4. **Natural Language Processing (NLP):**
   * Analyze user reviews and ratings to gain insights into user preferences and improve recommendations.

**Ethical Considerations:**

**1. Privacy of User Data:**

* Ensure that user data is anonymized and securely stored to protect user privacy.

**2. Bias in Recommendations:**

* Address potential biases in recommendations to ensure fairness and diversity in suggested books.

**3. Data Consent:**

* Ensure that data used for analysis is obtained with proper consent and complies with data protection regulations.

**Challenges/Issues:**

1. **Data Integration:**

* Combining data from multiple sources while maintaining consistency and accuracy.

2. **Handling Sparse Data:**

* Dealing with users who have limited interaction data and ensuring they receive relevant recommendations.

3. **Scalability:**

* Ensuring the recommendation system can handle a large volume of users and books efficiently.

**References**

Chen, L., Chen, G., & Wang, F. (2015, January 15). Recommender Systems Based on User Reviews: The State of the Art. Kowloon Tong, Hong Kong; Hong Kong RGC. [UMUAI15\_Chen.pdf (hkbu.edu.hk)](https://www.comp.hkbu.edu.hk/~lichen/download/UMUAI15_Chen.pdf)

Kaggle Datasets: Goodreads, Book-Crossing, and Amazon Book Reviews.

Rocca, B., & Rocca, J. (2019, June 12). *Introduction to Recommender Systems*. Medium. <https://towardsdatascience.com/introduction-to-recommender-systems-6c66cf15ada>