CSE 4554: MACHINE LEARNING LAB

BOOK RECOMMENDATION SYSTEM

Presented By : Team 10

https://github.com/adeebaah/BookRecommendationModel

THE TEAM

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PROJECT OVERVIEW

Our project focuses on the development and evaluation of a book recommendation system based on user-based collaborative filtering.

MOTIVATION

Not widely explored

Among the wide range of applications of recommender systems, the field of book recommendations remains relatively new and unexplored.

User satisfaction

Providing relevant recommendations will improve user satisfaction and increasing the likelihood of users returning to the platform.

PROJECT FEATURES

- **Collaborative Filtering:**

  Utilizes user behavior and patterns to suggest books, leveraging the wisdom of the crowd.

- **K-Nearest Neighbors Algorithm:**

  Employs a proximity-based approach to find similar users and recommend books based on user similarity.

PROJECT FEATURES

- **Precision and Recall Metrics:**

  Incorporates these metrics to evaluate the relevance and accuracy of the recommendations.

- **User-Friendly Interface:**

  Features a straightforward and interactive GUI for users to receive and interact with book recommendations.

DATASET OVERVIEW

1. Data on 271360 books obtained from Amazon Web Services

2. Data on 278858 users along with some demographic information

3. Book ratings by different users

MODEL USED

We formed a pivot table with user ID and Book Title. Converting it into a CSR matrix, we fed it to the Nearest Neighbor Brute Force Model

RESULT ANALYSIS

Accuracy:

- System achieved an accuracy of 98.36%.

Interpretation:

- The accuracy reflects the system's proficiency in suggesting books based on user preferences.

CHALLENGES

Data Sparsity

Handling sparse user interactions, which complicates accurate preference prediction and requires robust data processing.

Recommendation Balance

Achieving the right mix between relevance (precision) and discovery (recall) in the recommendations, a key to user satisfaction.

THANK YOU