Movie Recommendation System

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Introduction

This project implements a Movie Recommendation System using both Collaborative Filtering and Content-Based Filtering techniques. The system uses the MovieLens 100k dataset and allows users to get movie recommendations based on their preferences.

Abstract

The recommendation system is built using Python and Streamlit. It supports two recommendation strategies:

1. **Collaborative Filtering**: Based on user ratings to find similar preferences.
2. **Content-Based Filtering**: Based on movie genres using TF-IDF vectorization.

The app also includes poster previews of recommended movies using TMDB API integration.

Tools Used

- Python
- Pandas
- Scikit-learn
- Streamlit
- TMDB API
- MovieLens 100k Dataset

- TfidfVectorizer

- Cosine Similarity

Steps Involved in Building the Project

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1. Loaded the MovieLens dataset and merged ratings with movie titles and genres.

2. Created a user-movie matrix and computed cosine similarity for collaborative filtering.

3. Applied TF-IDF on genres for content-based similarity computation.

4. Developed a dual-tab Streamlit interface.

5. Integrated TMDB API to show posters of recommended movies.

6. Packaged everything in a single app for user-friendly exploration.

Conclusion

The Movie Recommendation System provides meaningful suggestions using two robust techniques. It demonstrates real-world application of recommender systems with a clean, interactive UI and external API integration.