Enhancing the TMDB Movie Recommender System

Great to hear about your TMDB Movie Recommender System project! It's already a strong foundation with content-based filtering and integration with the TMDB API.

You're right, similar projects have become quite common, so adding advanced functionalities and new data science techniques will elevate it to the next level.

Data Science Techniques to Add

1. Hybrid Recommendation System

- Combine content-based filtering with collaborative filtering for better recommendations:

- Collaborative Filtering: Use user-item interaction data (e.g., user ratings, watch history).

- Blend the results of content-based and collaborative filtering to recommend movies that are not only similar but also popular among users with similar preferences.

2. Sentiment Analysis on Reviews

- Fetch user reviews for movies from TMDB or another source (e.g., IMDB).

- Use NLP sentiment analysis to classify reviews as positive, neutral, or negative.

- Filter recommendations based on sentiment scores.

3. Deep Learning-Based Recommendation

- Train a deep learning model (e.g., Word2Vec or movie2vec) to create embeddings for movies based on genres, actors, descriptions, etc.

- Use similarity in the embedding space for recommendations instead of cosine similarity.

4. Incorporate Time-Series Modeling

- Track movie popularity over time (based on ratings, views, or searches) and recommend trending movies.

5. Diversified Recommendations

- Add diversity-aware filtering to balance similarity and diversity in recommendations.

6. Personalization with Clustering

- Cluster users or movies based on features (e.g., genres, ratings, actors).

7. Context-Aware Recommendations

- Consider time of the day, season, or mood for recommendations.

8. Graph-Based Recommendations

- Build a movie-actor-user graph (using libraries like NetworkX or Neo4j).

9. Explainable Recommendations

- Use Shapley values or feature importance techniques to explain why certain movies are recommended.

Additional Functionalities to Add

1. User Profiles

- Allow users to create profiles where they can rate movies they've watched, save watchlists, and get personalized recommendations.

2. Dynamic Movie Metadata Updates

- Use APIs (e.g., TMDB API) to update metadata dynamically.

3. Recommendation Filters

- Add filters for genre, release year, or language.

4. Similar Users and Watchlists

- Introduce a "users like you" feature to recommend movies based on shared watchlists.

5. Multi-Criteria Recommendations

- Let users define what they value most (e.g., prioritize highly rated or newly released movies).

6. Popularity and Trending Movies

- Add a "Trending Now" section based on recent movie popularity.

7. Sentiment-Based Recommendations

- Show movies with a predominance of positive reviews.

8. Gamification

- Add features like badges for watching movies of a genre or actor.

9. Visual Recommendations

- Recommend movies using visual similarity, such as analyzing posters using computer vision techniques.

10. Social Sharing

- Allow users to share their watchlists or favorite movies on social media.

Next Steps

1. Choose 1-2 techniques to implement first (e.g., hybrid filtering or sentiment analysis).

2. Gradually incorporate additional functionalities.

3. Test your system with real users and gather feedback to refine the recommendations.