Introduction

The Movie Recommendation Application utilizes advanced natural language processing (NLP) techniques to recommend movies based on user-provided textual descriptions. Unlike traditional movie recommendation systems that rely on user ratings or reviews, this application focuses on the thematic and narrative content of movie scripts.

Traditional movie recommendation systems often rely on user ratings or reviews, which may not always align with individual tastes or preferences. The challenge lies in providing recommendations based on the actual content and themes of movies rather than subjective opinions.

Solution Overview

The Movie Recommendation Application leverages the following key technologies and methodologies:

1. **Deep Learning and Transfer Learning:** Utilizes BERT (Bidirectional Encoder Representations from Transformers), a state-of-the-art NLP model pretrained on vast amounts of text data, to understand the semantic content of movie scripts.
2. **Preprocessing and Feature Extraction:** Scripts from over 1,000 movies are preprocessed using techniques such as tokenization, lemmatization, sentiment analysis, and topic modeling. This preprocessing extracts meaningful features from scripts, enhancing the recommendation process.
3. **Semantic Matching:** Compares user-input movie descriptions with preprocessed script features using cosine similarity. This technique ensures that recommended movies are not only thematically similar but also align sentimentally with the user's description.
4. **User Interface:** The application provides a streamlined user interface powered by Streamlit, making it intuitive for users to input their movie preferences and receive instant recommendations.

Application Workflow

1. **Input:** Users enter a textual description of the type of movie they are looking for (e.g., "action-packed superhero movie").
2. **Processing:** The application preprocesses the user input, extracts semantic features using BERT, and computes similarity scores against preprocessed movie scripts (preloaded).
3. **Recommendation:** Based on the computed scores, the application returns the top 5 recommended movies that best match the user's input description.

Features and Future Scope

With more already preprocessed movies, our system would be able to have a wide breadth of options for recommendations. Sticking to just a database loaded from 2017 and prior limits our predictive ability, so it would need to be retrained on newer movie scripts. If we are to expand our preprocessing capabilities, we would be able to more elegantly refine the prediction process to better match sentiments across movies and user queries.

Conclusion

The Movie Recommendation Application represents a novel approach to movie recommendation systems, focusing on the intrinsic content of movie scripts. By leveraging deep learning and NLP techniques, it provides a robust platform for users to discover movies that match their specific interests and preferences effectively.