Movie Recommendation System Project Report

Executive Summary:

The Movie Recommendation System project aims to provide personalized movie recommendations based on user input. Leveraging cosine similarity and TfidfVectorizer, the system analyzes movie features, including genres, keywords, tagline, cast, and director, to suggest similar movies to the user's favourite.

Project Objectives:

- Develop a movie recommendation system using cosine similarity.
- Utilize TfidfVectorizer to convert textual movie features into numerical vectors.
- Provide users with a list of similar movies based on their input.

Methodology:

Data Collection and Preprocessing:

- The dataset, containing movie information, was loaded from the 'movies.csv' file.
- Relevant features for recommendation, such as genres, keywords, tagline, cast, and director, were selected.
- Null values in these features were replaced with an empty string.

Textual Data Conversion:

- The selected features were combined into a single string for each movie.
- TfidfVectorizer was employed to convert the textual data into numerical feature vectors.

Cosine Similarity Calculation:

- Cosine similarity was used to compute the similarity scores between movies.
- The user's favourite movie was input, and the system found the closest match in the dataset.

Movie Recommendation:

- The system ranked movies based on their similarity scores.

- The top 30 movies with the highest similarity scores were suggested as recommendations.

Data Analysis:

Dataset Overview:

- The dataset consists of 4803 rows and 24 columns.
- Selected features include genres, keywords, taglines, cast, and director.

Textual Data Analysis:

- TfidfVectorizer generated feature vectors with a shape of (4803, 17318).
- Cosine similarity scores were computed for all movie pairs.

User Input and Recommendations:

- Users can input their favourite movies to receive personalized recommendations.
- The system finds the closest match, computes similarity scores, and presents the top 30 recommendations.

Recommendations:

Based on the analysis, the Movie Recommendation System demonstrates the capability to provide meaningful suggestions to users based on their movie preferences. To enhance the system:

User Interface: Develop a user-friendly interface for seamless interaction.

Real-time Updates: Incorporate mechanisms to update recommendations based on user feedback.

Diverse Features: Expand the set of features for a more comprehensive analysis, such as user reviews and ratings.

Limitations:

- The system relies on textual features and may not capture all aspects of user preferences.
- Limited to the features available in the dataset.

Future Work:

- Explore collaborative filtering techniques to improve recommendation accuracy.

- Incorporate user feedback for continuous improvement.
- Extend the system to handle a larger and more diverse dataset.

Conclusion:

The Movie Recommendation System project successfully implements a cosine similarity-based approach to suggest movies to users. By combining textual features and leveraging advanced techniques, the system provides valuable insights and recommendations for movie enthusiasts.