Which Movie Should I watch? Automated Movie Recommeder

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I. MOTIVATION

With the growing popularity of OTT (over-the-top) platforms like Netflix, PrimeVideo and Hotstar, it has become increasingly valuable to recommend a movie/show to the user that they will watch and enjoy with a high probability. A good recommendation can help OTT companies maximize their revenue and increase customer satisfaction. A host of features such as cast, director, genre, country, duration, language, rating and many others may come into play while recommending movies/shows.

II. RELATED WORK

The paper [1] suggests a simple but efficient recommendation algorithm that divides different attributes into several clusters. The proposed method can significantly reduce the time complexity while achieving comparable recommendation performance to traditional methods.

The paper [2] deals with the neighbour selection difficulty in sparse data. A hybrid model-based method that utilizes the improved K-means clustering coupled with genetic algorithms (GAs) was proposed. It employs the PCA data reduction technique to dense the movie population space, reducing the computation complexity.

They created [3] recommenders using demographic, content-based and collaborative filtering. This model was very baseline and only provides a fundamental framework to start with.

III. TIMELINE

A Tentative 12-Week Plan:
Week 1: Exploring for Dataset
Week 2: Data Pre-processing
Week 3: Data Visualization
Week 4: Feature Extraction
Week 5: Feature Analysis (Selection, Correlation) and Visualization

Week 6-7: Feature Extraction
Week 7-9: Support Vector Machines, Logistic Regression, Decision Trees, Random Forest, K-Nearest Neighbour, K-shortest Path, K-means Clustering
Week 10: Analysis and performances of Previously created model
Week 11: Hyperparameter tuning
Week 12: Final Report Writing

IV. INDIVIDUAL TASKS

We will all work on the Analyzing model performance, hyperparameter tuning and final report together.

1. Bhagesh: Data Pre-processing, SVM, Decision Tree, Random Forest, K-shortest Path, ANN
2. Mohit: Data Pre-processing, SVM, Decision Tree, Random Forest, K-Means Clustering
3. Ojus: Data Visualization, Logistic Regression, K-nearest Neighbour, K-shortest Path, ANN
4. Vaibhav: Feature Engineering, K-nearest Neighbour, K-Means Clustering

V. FINAL OUTCOME

We aim to utilize various machine learning techniques to give users personalized recommendations of movies and shows that they might enjoy.

This project will help us gain insight into various machine learning techniques while working on real datasets.

VI. REFERENCES

[1]J. Zhang, Y. Wang, Z. Yuan and Q. Jin, "Personalized real-time movie recommendation system: Practical prototype and evaluation," in Tsinghua Science and Technology, vol. 25, no. 2, pp. 180-191, April 2020, doi: 10.26599/TST.2018.9010118.
[2]https://doi.org/10.1016/j.jvlc.2014.09.011.
[3]https://www.kaggle.com/code/ibtesama/getting-started-with-a-movie-recommendation-system

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