FYP

1. Movie Recommendation System using Machine Learning DOI: 10.1109/ICIRCA54612.2022.9985512

This study is to design a movie recommendation system using collaborative filtering algorithm, we can consider two approaches:

1. **User-based Collaborative Filtering:**

In this approach, when recommending movies to a user, we compare the similarity of preferences among users. By finding the most similar users, we can recommend movies that these similar users have liked to the target user.

2. **Item-based Collaborative Filtering:**

In this approach, if a user highly rates a particular movie, we leverage the ratings of all users to identify movies that are most similar to the highly-rated movie. These similar movies are then recommended to the user.

However, collaborative filtering algorithms have certain challenges:

- High computational complexity: Calculating similarities between users or items can be computationally expensive, especially with large datasets.

- Sparse data problem: When the rating data is sparse, i.e., many movies have limited ratings, it becomes challenging to calculate accurate similarities.

- Over-reliance on similar ratings: If a movie is highly rated by a single user, it may lead to inflated similarities. To address this, techniques like SVD can be applied to mitigate the impact of such outliers.

2. Similarity Based Collaborative Filtering Model for Movie Recommendation Systems DOI: 10.1109/ICICCS51141.2021.9432354

This study aimed to enhance the performance and accuracy of the recommendation system (RS) and conducted further experiments to evaluate and analyze the performance of various benchmark similarity metrics, such as Pearson correlation, Euclidean distance, cosine similarity, and Jaccard distance.

Experimental Conclusion: For datasets like MovieLens, which are diverse and not normalized, the Pearson correlation score outperformed other similarity metrics.

3. Machine Learning Based Movie Recommendation SystemDOI: 10.1109/UPCON52273.2021.9667602

This study is also designing a movie recommendation system, the main aim of this system is to recommend movies to the users based on what they search. Content-based filtering and Collaborative filtering are the main approaches for recommending movies. It introduces to Collaborative Filtering based Movie Recommendation Systems and how to calculate the simarity between one movie to the other movie. It proposed a model based on this method and implement it.

4. Movie Recommendation System Using Collaborative FilteringDOI: 10.1109/ICSESS.2018.8663822

This paper is to design a movie recommendation system that considers the past movie ratings given by various users to provide suggestions to the user. They implemented this system using collaborative filtering algorithms and Apache Mahout framework. The second goal is to compare the performance and efficiency of user-based recommender system and item-based recommender system.

This paper is organized as follows: First, a brief overview of a few relevant, recent research done in the space of recommender system will be discussed. Second, the understanding on the technique of collaborative filtering. Third, the data preparation and data analysis approach using Mahout will be discussed. Finally, a qualitative evaluation on the techniques used will be presented.

5. Machine Learning Based Personalized Movie Research and Implementation of Recommendation System DOI: 10.1109/CoST57098.2022.00025

This paper is also design a movie recommendation system. It only focus on User-Based Collaborative Filtering Algorithm

The rating data is preprocessed and visualized in consideration of the user's real behavior. Then implement the algorithm mentioned above, and use the test indicators to measure the performance of the recommender system and optimize the system parameters. Finally, using software engineering and Java front-end knowledge based on Spring+SpringMVC+Mybaits (SSM) to develop a demo system.

6. HCB Machine Learning Approach For Movie Recommendation System DOI: 10.1109/ICICCS53718.2022.9788163

This Paper indroduce the defination of HCB(Hybrid Collaborative-Based) Machine Learning Approach and it conducts a experiment. The experimental results on movie rating and review rating with movie lens data set shows high result than SVD, KNN and Co-Clustering Mac hine Learning (ML) algorithms.

The movies are recommended using HCB approach which gives good accuracy in comparison with other machine learning approaches like KNN, SVD and co-clustering which gives higher error rate. The data set used is movie lens dataset. The similarity scores are been calculated using cosine similarity and the error rate like NRMSE, MAE, RMSE, RMAE are been calculated.

7. Web-Based Movie Recommendation System using Content-Based Filtering and KNN Algorithm DOI: 10.1109/ICITACEE55701.2022.9923974

This system was built based on a content-based movie recommendation system (RS) with Python data analytic tools and the Django web framework. it presented content-based filtering with a cosine similarity algorithm for this system and implemented the KNN algorithm for classification.

it calculated the accuracy as a performance evaluation using the KNN classification algorithm resulting from the Cosine Similarity and TF-IDF calculations to verify this system's performance

KNN: The K-Nearest Neighbors (KNN) algorithm is a simple yet powerful supervised learning algorithm used for classification and regression problems. It belongs to the family of instance-based or lazy learning algorithms, where the model is constructed based on the similarity of training examples to the input data.

8. Machine Learning approach for Item-basedMovie Recommendation using the most relevant similarity techniques DOI: 10.1109/HORA52670.2021.9461381

This paper introduces two similarity techniques which are Relevant Jaccard Similarity and Relevant Jaccard Mean Square Distance based on item-based filtering. These two methods increase the exactness of recommendation according to lower counting time. Co-rated items are used for similarity metrics. This model works well in the cold start problems.

The authors introduce a new approach that combines relevance-based item similarity with movie genre and director-based similarity measures. Genre and director attributes are used in their proposed method. This approach works for new items that haven't been rated yet and when all items have the same rating. This method improves recommendation performance on sparse datasets. It also provides better performance in the cold start problem.

9. Research on an improved Collaborative filtering algorithm--taking Movie recommendation system as an example DOI：10.13509/j.cnki.ib.2020.01.010

Collaborative filtering algorithm is the most widely used algorithm in personalized recommendation system. However, with the rapid increase of the number of users and information resources, the unreliability, sparsity and timeliness of data seriously affect the recommendation quality of the recommendation system.

In order to solve these problems, researchers have improved the traditional collaborative filtering algorithm, mainly focusing on the two dimensions of time and space. First of all, in space, they construct the emotional score matrix and combine it with the scoring matrix to alleviate the unreliable subjective scoring of users. By considering the user's emotional tendency, we can better understand the user's preference for items, so as to improve the accuracy of recommendation.

Secondly, in terms of time, researchers introduce time weight factor to simulate users' interest transfer, in order to alleviate the problem of data sparsity and timeliness. With the passage of time, the user's interest will change, so considering the time factor can better reflect the user's current interest, thus improving the recommendation result.

In addition, the combination of user interest distribution similarity and score similarity is also a method to improve the quality of recommendation. By comprehensively considering the interest distribution and scoring behavior of users, we can find similar users more accurately and provide personalized recommendations for target users.

10. Application of improved Collaborative filtering algorithm in Movie recommendation systemDOI： 10.19311/j.cnki.1672-3198.2018.17.028

This study mainly discusses the application of collaborative filtering algorithm in movie recommendation system. Although collaborative filtering is one of the most extensive and successful recommendation technologies at present, it also has some problems, such as data sparsity and the change of user interest.

In order to solve these problems, the researchers analyzed the project-based collaborative filtering algorithm and proposed an improved method. First of all, they introduce the common score weight function and time weight function to improve the similarity calculation and prediction score calculation method. The weight function of joint evaluation takes into account the importance of joint evaluation of movies among users in order to improve the accuracy of similarity calculation. The time weight function simulates the changes of users' interests, taking into account the users' dynamic preference for movies.

Through the verification experiments on Movielens data sets, the researchers verify that the improved collaborative filtering algorithm has a significant improvement in recommendation accuracy compared with traditional methods. This means that the improved algorithm can better solve the problems such as data sparsity and the change of user interest, and provide more accurate and personalized movie recommendations.