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Movie Recommendation System Using Hybrid Filtering and Sentimental Analysis

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ABSTRACT

As humans' opinions help enhance products efficiency, and since the success or the failure of a movie depends on its reviews, there is an increase in the demand and need to build a good sentiment analysis model that classifies movies ratings. In this research, tokenization is employed to transfer the input string into a word vector, stemming is utilized to extract the root of the words, feature selection is conducted to extract the essential words, and finally classification is performed to label reviews as being either positive or negative. We build this model simply by using KNN.

Keywords: Machine Learning, KNN, Natural Language Processing (NLP).

I. INTRODUCTION

Important because they reflect their satisfaction with products, services and available technologies. Being able to interact with people on that level has many advantages for information systems; such as enhancing products quality, adjusting marketing and business strategies, improving customer services, managing crisis, and monitoring performances. A movie review is an article reflecting its writers' opinion about a certain movie and criticizing it positively or negatively, which enables everyone to understand the overall idea of that movie and make the decision whether to watch it or not. A movie rating can affect the whole crew who worked on that movie. A study illustrates that in some cases, the success or the failure of a movie depends on its reviews [2]. Therefore, a vital challenge is to be able to classify movies reviews to capture, retrieve, quantify and analyze watchers more effectively [3]. Movie reviews classification into positive or negative reviews is connected with words occurrences from the reviews text, and weather those words have been used before in a positive or a negative context.

Movies can be easily differentiated through their genres, such as comedy, thriller, animation, and action. Another possible way to categorize the movies based on its metadata, such as release year, language, director, or cast. Most online video-streaming services [36], [51] provide personalized user experience by utilizing the user's historical data, such as previously viewed or

rated history. Movie RSs [3], [25], [28], [56], [64] help us to quickly search preferred movies over online. The foremost requisite for a movie RS is that it should be trustworthy and provide the users with the recommendation of movies that are resembling their preferences. In recent times, with an exponential increase in the amount of online data, RS is beneficial for making decisions in day-today activities.

To overcome this limitation, various social media platforms, such as Quora, Facebook, Instagram, and Twitter, people use to share their daily state of mind over the Internet. Twitter [1], [2], [16] is one of the most popular social media platform founded in 2006 where users can express their thoughts in limited characters. The Unique Selling Proposition of Twitter is that the existing users not only receive information according to their social links but also gain access to other user-generated information. The source of information on Twitter is called tweets. Tweets keep users updated about their favorite topics, people, and movies in limited characters. The main contributions of this article are as follows. 1) A hybrid RS is proposed by combining CBF and CF. 2) Sentiment analysis is used to boost up this RS

II. RELATED WORKS

Recommendation systems (RSs) have garnered immense interest for applications in e-commerce and digital media. Traditional approaches in RSs include such as collaborative filtering (CF) and content-based filtering (CBF) through [1] these approaches that have certain limitations, such as the necessity of prior user history and habits for performing the task of recommendation. To minimize the effect of such limitation, this article proposes a hybrid RS for the movies that leverage the best of concepts used from CF and CBF along with sentiment analysis of tweets from microblogging sites. The purpose to use movie tweets is to understand the current trends, public sentiment, and user response of the movie. Experiments conducted on the public database have yielded promising results.

A novel method for music[2] video recommendation is presented in this paper. The contributions of this paper are two-fold. (i) The proposed method constructs a network, which not only represents relationships between music videos and users but also captures multi-modal features of music videos. This enables collaborative use of multi-modal features such as audio, visual, and textual features, and multiple social metadata that can represent relationships between music videos and users on video hosting services. (ii) A novel scheme for link prediction considering local and global structures of the network (LP-LGSN) is newly derived by fusing multiple link prediction scores based on both local and global structures. By using the LP-LGSN to predict the degrees to which users desire music videos, the proposed method can recommend users' desired music videos. The experimental results for a real-world dataset constructed from YouTube-8M show the effectiveness of the proposed method

Group recommendation plays a significant role in today's social media systems, where users form social groups to receive multimedia content together and interact with each other, instead of consuming[3] the online content individually. Limitations of traditional group recommendation approaches are as follows. First, they usually infer group members' preferences by their historical. To address these issues, we propose a social-aware group recommendation framework that jointly utilizes both social relationships and social behaviors to not only infer a group's preference, but also model the tolerance and altruism characteristics of group members. Based on the observation that the following relationship in the online social network reflects common interests of users, we propose a group preference model based on external experts of group members. Furthermore, we model users' tolerance (willingness to receive content not preferred) and altruism (willingness to receive content preferred by friends). Finally, based on the group preference model, we design recommendation algorithms for users under

different social contexts. Experimental results demonstrate the effectiveness of our approach, which significantly improves the recommendation accuracy against traditional approaches, especially in the cases of inactive group members.

Recommender systems are new types of Internet-based software tools, designed [4] to help users find their way through today's complex on-line shops and entertainment Web sites. This paper describes a new recommender system, which employs a particle swarm optimization (PSO) algorithm to learn personal preferences of users and provide tailored suggestions. Experiments are carried out to observe the performance of the system and results are compared to those obtained from the genetic algorithm (GA) recommender system and a standard, non-adaptive system based on the Pearson algorithm.

III.Methodology

Proposed system:

Where as in the case of the present system we can predict the movie rating by using machine learning which gives the best result and we can predict the movie based on machine leering technique based on that we can say which movie is good or bad .

Flow of the project:

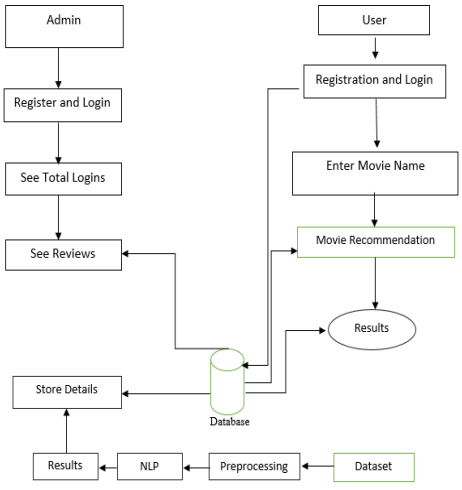


Figure 1: block diagram

IV. Implementation

K Nearest Neighbors:

K-Nearest Neighbor is one of the simplest Machine Learning algorithms based on Supervised Learning technique. K-NN algorithm assumes the similarity between the new case/data and available cases and put the new case into the category that is most similar to the available categories. K-NN algorithm stores all the available data and classifies a new data point based on the similarity. This means when new data appears then it can be easily classified into a well suite category by using K- NN algorithm.

K-NN algorithm can be used for Regression as well as for Classification but mostly it is used for the Classification problems. K-NN is a non-parametric algorithm, which means it does not make any assumption on underlying data. It is also called a lazy learner algorithm because it does not learn from the training set immediately instead it stores the dataset and at the time of classification, it performs an action on the dataset.

KNN algorithm at the training phase just stores the dataset and when it gets new data, then it classifies that data into a category that is much similar to the new data.Suppose there are two categories, i.e., Category A and Category B, and we have a new data point x1, so this data point will lie in which of these categories. To solve this type of problem, we need a K-NN algorithm. With the help of K-NN, we can easily identify the category or class of a particular dataset.

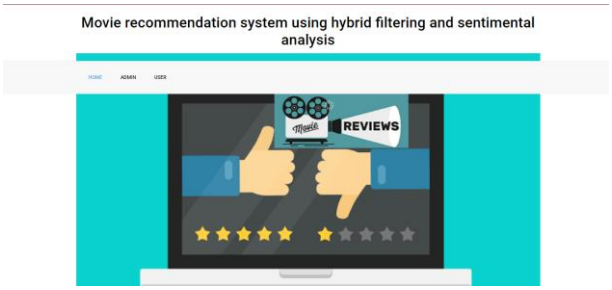
The K-NN working can be explained on the basis of the below algorithm:

1. Step-1: Select the number K of the neighbors
2. Step-2: Calculate the Euclidean distance of K number of neighbors
3. Step-3: Take the K nearest neighbors as per the calculated Euclidean distance.
4. Step-4: Among these k neighbors, count the number of the data points in each category.
5. Step-5: Assign the new data points to that category for which the number of the neighbor is maximum.
6. Step-6: Our model is ready.

V. Results and Discussion

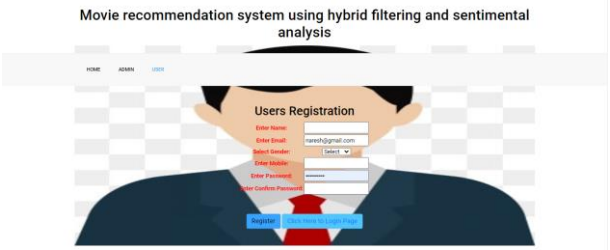
The following images will visually depict the process of our project.

Home page:



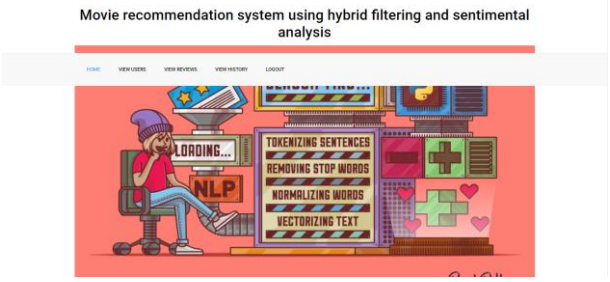
Admin:

Register:

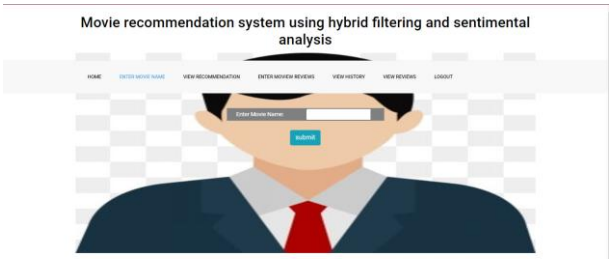


User login:

User home:

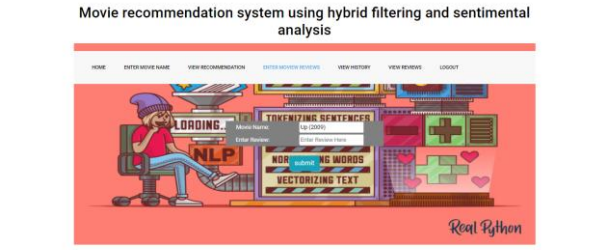


Enter movie name:



Recommendation:

Review:



View history:

View reviews:

VI. CONCLUSION

The research goal of this work is to address by constructing an approach that can classify movie ratings and then compare the results in an inclusive

study of well-known classifier. To evaluate the proposed model, movie reviews dataset was utilized. Tokenization was applied on the dataset to transfer strings into word vector, then stemming was used to extract the root of the words, afterwards gain ratio was applied on the dataset as an attribute selection algorithm.

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