

Department – Computer Shift 02 Project Synopsis

GROUP ID: 01

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PROJECT TITLE: Design and Implementation of Recommender Systems using Hybrid Filtering Approach

PROJECT DOMAIN: Machine Learning, Web Development

INTERNAL GUIDE: Prof. B. A. Patil

SPONSORSHIP AND EXTERNAL GUIDE: None

LITERATURE SURVEY:

1. Ashrita Kashyap, Sunita. B, Sneh Srivastava, Aishwarya. PH, Anup Jung Shah, “A Movie Recommender System: MOVREC using Machine Learning Techniques”, Department of Computer Science & Engineering: SAIT, Bengaluru, Karnataka, India

2. Nirav Raval, Vijayshri Khedkar, “A Review Paper on Collaborative Filtering Based Movie Recommendation System”

3. Min Li, Yingming Zeng, Yue Guo and Yun Guo, “A Movie Recommendation System Based on Differential Privacy Protection”, Hindawi, Security and Communication Networks Volume 2020, Article ID 6611463, 10 pages, <https://doi.org/10.1155/2020/661146>

4. Bei-Bei CUI, “Design and Implementation of Movie Recommendation System Based on   
KNN Collaborative Filtering Algorithm”, DOI: 10.1051/itmconf/20171204008

5. C. M. Wu, D. Garg and U. Bhandary, "Movie Recommendation System Using Collaborative Filtering," 2018 IEEE 9th International Conference on Software Engineering and Service Science (ICSESS), 2018, pp. 11-15, doi: 10.1109/ICSESS.2018.8663822.

PROBLEM STATEMENT: To develop a recommender system for movies & tv series, music, books on a webapp. The system should also recommend songs based on the movies watched and liked.

TECHNICAL KEYWORDS (ANY FIVE ALPHABETICAL ORDER): Content Based Filtering, Collaborative Filtering, Hybrid Filtering, Python, MERN Stack

ABSTRACT:

This paper discusses about recommendations of the movies. A movie recommendation is important in our social life due to its strength in providing enhanced entertainment. Such a system can suggest a set of movies to users based on their interest, or the popularities of the movies. A recommendation system is used for the purpose of suggesting items to purchase or to see. They direct users towards   
those items which can meet their needs through cutting down large database of Information. A recommender system, or a recommendation system (sometimes replacing 'system' with a synonym such as platform or engine), is a subclass of information filtering system that seeks to predict the "rating" or "preference" a user would give to an item. They are primarily used in commercial applications. MOVREC also help users to find the movies of their choices based on the movie experience of other users in efficient and effective manner without wasting much time in useless browsing.

The amount of movie has increased to become more congested; therefore, to find a movie what users are looking for through the existing technologies are very hard. For this reason, the users want a system that can suggest the movie requirement to them and the best technology about these is the recommendation system. However, the most recommendation system is using collaborative filtering methods to predict the needs of the user due to this method gives the most accurate prediction. Today, many researchers are paid attention to develop several methods to improve accuracy rather than using collaborative filtering methods. Hence, to further improve accuracy in the recommendation system, we present the *k*-clique methodology used to analyze social networks to be the guidance of this system. In this paper, we propose an efficient movie recommendation algorithm based on improved *k*-clique methods which are the best accuracy of the recommendation system. However, to evaluate the performance; collaborative filtering methods are monitored using the *k* nearest neighbors, the maximal clique methods, the *k*-clique methods, and the proposed methods are used to evaluate the Movie Lens data. The performance results show that the proposed methods improve more accuracy of the movie recommendation system than any other methods used in this experiment.

In Today’s era, Recommendation systems are the most important intelligent systems that plays in giving the information to the users. Previously approaches in recommendation systems (RS) include Content-based-filtering and collaborative filtering. Thus, these approaches have certain limitations as like the necessity of the user history as they visit. So as to make back the effect of such dependencies, this research paper provides a hybrid RS are those which mixes both Collaborative filtering, Content based filtering with sentiment analysis of movies. In this research paper, we developed a recommender system based on the sentiment of the user to suggest the movie to the user based on their view history.

Nowadays, the recommendation system has made finding the things easy that we need. Movie   
recommendation systems aim at helping movie enthusiasts by suggesting what movie to watch   
without having to go through the long process of choosing from a large set of movies which go up to   
thousands and millions that is time consuming and confusing. In this article, our aim is to reduce the   
human effort by suggesting movies based on the user’s interests. To handle such problems, we   
introduced a model combining both content-based and collaborative approach. It will give   
progressively explicit outcomes compared to different systems that are based on content-based   
approach. Content-based recommendation systems are constrained to people, these systems don’t   
prescribe things out of the box, thus limiting your choice to explore more. Hence, we have focused   
on a system that resolves these issues.

Music->

AbstractDevelop an approach, to find the similarities between pair of songs using audio features and lyrics.

The approach used in this paper focuses on various features of songs. Here, the user interface allows user to play songs and at the same time recommends songs based on the current song being played. The recommendations are stored using firebase firestore and firebase storage.

The audio features and lyrics score of each pair of songs are provided to the algorithm. Artificial Neural Networks and KNN regression are the algorithms used. The algorithm predicts the similarity score between pair of songs. Songs which have highest similarity scores with respect to the currently playing song is recommended to the user.

In this paper, the main objective of music recommendation is to give good recommendations to users and provide good human computer interaction.

Along with the rapid expansion of digital music formats, managing and searching for songs has become significant. Though music information retrieval (MIR) techniques have been made successfully in last ten years, the development of music recommender systems is still at a very early stage. Therefore, this paper surveys a general framework and state-of-art approaches in recommending music. Two popular algorithms: collaborative filtering (CF) and content-based model (CBM), have been found to perform well. Due to the relatively poor experience in finding songs in long tail and the powerful emotional meanings in music, two user-centric approaches: context-based model and emotion-based model, have been paid increasing attention. In this paper, three key components in music recommender - user modelling, item profiling, and match algorithms are discussed. Six recommendation models and four potential issues towards user experience, are explained. However, subjective music recommendation system has not been fully investigated. To this end, we propose a motivation-based model using the empirical studies of human behaviour, sports education, music psychology.

Technology in the music players is developing rapidly, especially in smart phones. Nowadays users have access to millions of songs available online. Selecting favorite music among these large archives is one of the biggest problem. Every user has his own taste of music selection. Selecting music depends on the surroundings and the mood of the user. New users and new items emerge every day, and the system has to react to them promptly. The problem of personalized music recommendation that takes different kinds of auxiliary information into consideration is resource constraint due to large amount of data involvement but these models provide much accurate results so more of these are being used for commercial purpose. The main aim of the recommendation system is to recommend songs such that it is closed to the user’s choice. As a comparative study, we will be analyzing the Graph-based Novelty Research On The Music Recommendation, Music Recommendation System Based on the Continuous Combination of Contextual Information, Smart- DJ: Context-aware Personalizing for Music Recommendation on Smart phones. These models are outlined to assist the users to find out the new music that is personalized. For the analysis purpose, we will be using data set provided by Douban Music.

The main aim of MRS is to give proper meaningful suggestion to person for specific items based on users mood and interest towards particular items, MRS has seen a boom in recent years. The two most popular recommendation algorithms: 1) Content-Based Filtering and 2) Collaborative Filtering. The Content Based method recommends music based on the user data, In Collaborative method we use rating and sharing of content between different users to recommend music. We take help to provide the music recommendation by content-based method music subjective features are like the Speechiness, loudness and Acoustiness etc. are analyzed. Cold-start is the most common problem for new users. Here, most popular tracks are recommended to users to solve it.

**Keywords:** Music Recommendation, content & collaborative based approach, cold-start, challenges

Books

Today the amount of information in the internet growth very rapidly and people need some instruments to find and access appropriate information. One of such tools is called recommendation system. Recommendation systems help to navigate quickly and receive necessary information. Generally they are used in Internet shops to increase the profit. This paper proposes a quick and intuitive book recommendation system that helps readers to find appropriate book to read next. The overall architecture is presented with it's detailed description. We used a collaborative filtering method based on Pearson correlation coefficient. Finally the experimental results based on the online survey are provided with some discussions.

Recommendation systems are widely used to recommend products to the end users that are most appropriate. Online book selling   
websites now-a-days are competing with each other by many means. Recommendation system is one of the stronger tools to   
increase profit and retaining buyer. The book recommendation system must recommend books that are of buyer’s interest. This   
paper presents book recommendation system based on combined features of content filtering, collaborative filtering and   
association rule mining.

GOALS AND OBJECTIVES:

RELEVANT MATHEMATICS ASSOCIATED WITH THE PROJECT:

LIST OF REFERENCE PAPERS OF CONFERENCE/JOURNAL SUPPORTING PROJECT IDEA:

REVIEWS/COMMENTS BY INTERNAL GUIDE: