

# Movie Recommendation through Collaborative approach

**P.SRINIVASA RAO <sup>1</sup>**

Assistant Professor

Department of Computer Science and Engineering,  
Lendi Institute of Engineering and Technology, Vizianagaram  
Jawaharlal Nehru Technological University Kakinada, Andhra Pradesh, India  
e-mail: rao.srinivas27@gmail.com

**Bhuvaneswari.G <sup>2</sup>, J.DivyaVarahaLakshmi <sup>3</sup>, Bhuvaneswara Rao .A <sup>4</sup>, B.Geetha <sup>5</sup>**

IV B.Tech Students,

Department of Computer Science and Engineering,  
Lendi Institute of Engineering and Technology, Vizianagaram  
Jawaharlal Nehru Technological University Kakinada, Andhra Pradesh, India

**Abstract:** Nowadays the Recommendation system has made finding 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. In our Project, our aim is to reduce human effort by suggesting movies based on the user's interests. To handle such problems, we introduce a model combining both content-based and collaborative approaches. Hence, we have focused on a system that resolves the issues like Increasing Quality, Reducing the Buffering, Day-to-Day update which are used to handle more users based on the Content.

**Keywords:** Movie recommendation, Rating, Genre, Recommender system, Collaborative filtering

## 1. INTRODUCTION

Recommendation systems are becoming increasingly important in today's extremely busy world. People are always short on time with the myriad tasks they need to accomplish in the limited 24 hours. Therefore, the recommendation systems are important as they help them make the right choices, without having to expend their cognitive resources.

A recommendation system is a type of information retrieving system which is completely based on the priorities of a user, and make recommendations on the basis of user priorities. Now-a-days movie has become a common factor in our life's everyone loves to watch movie. So, most of them prefer to watch in YouTube, Netflix, Amazon prime. So, recommender systems have taken more and more place in our lives. From e-commerce to online advertisement (suggest to users the right contents, matching their preferences), recommender systems are today unavoidable in our daily online journeys. Another objective of the recommendation system is to achieve customer loyalty by providing relevant content and maximizing the time spent by a user on your website or channel. This also helps in increasing customer engagement.

In a very general way, recommender systems are algorithms aimed at suggesting relevant items to users. Recommender System is a system that seeks to predict or filter preferences according to the user's choices. Recommender systems are utilized in a variety of areas including movies, music, news, books, research articles, search queries, social tags, and products in general.

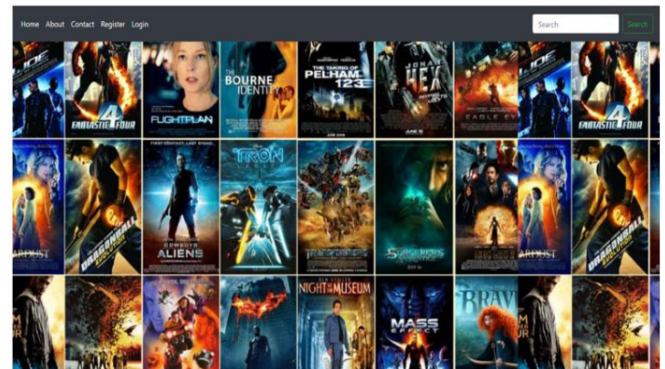


Figure 1: Movie Recommender System Home Page

The purpose of a recommendation system basically is to search for content that would be interesting to an individual. Moreover, it involves a number of factors to create personalized lists of useful and interesting content specific to each user/individual. Recommendation systems are Artificial Intelligence based algorithms that skim through all possible options and create a customized list of items that are interesting and relevant to an individual.

Advantages of Recommendation System:

- Drive Traffic:** A recommendation engine can bring traffic to your site. It accomplishes this with customized e-mail messages and targeted blasts.

- b). **Provide Relevant Material:** By analyzing the customer's present site use and his previous browsing history, a recommendation engine can deliver appropriate product suggestions as he stores. The data is gathered in real-time so the software can respond as his shopping habits change.
- c). **Engage Customers:** Consumers end up being more engaged in the website when individualized item recommendations are made. They are able to dive even more deeply into the product line without needing to carry out search after search.
- d). **Transform Shoppers to Clients:** Converting buyers into consumers takes a unique touch. Individualized communications from a recommendation engine reveal your customer that he is valued as an individual. In turn, this engenders his loyalty.
- e). **Increase Average Order Value:** Average order values generally go up when a recommendation engine in uses to show tailored alternatives. Advanced metrics and reporting can definitively reveal the efficiency of a project.
- f). **Boost Number of Items Per Order:** In addition to the average order value rising, the number of products per order likewise typically increases when a recommendation engine is used. When the customer is revealed options that fulfill his interest, he is most likely to add choices to his purchase.
- g). **Control Retailing and Inventory Rules:** A recommendation engine can add your very own marketing and inventory control directives to the customer's profile to feature items that are promotionally prices, on clearance or overstocked. It offers you're the versatility to regulate exactly what items are highlighted by the recommendation system.
- h). **Lower work and Overhead:** The volume of data required to create an individual shopping experience for each customer is typically far too huge to be handled manually. Utilizing an engine automates this process, reducing the workload of your IT staff and your spending plan.
- i). **Provide Reports:** Providing guides is an integral part of a personalization system. Providing the client precise and up to the minute reporting permits him

to make solid choices about his website and the direction of a project.

- j). **System Description:** A recommendation system is a type of information retrieving system which is completely based on the priorities of a user, and make recommendations on the basis of user priorities. Recommender System is a system that seeks to predict or filter preferences according to the user's choices. Recommender systems are utilized in a variety of areas including movies, music, news, books, research articles, search queries, social tags, and products in general.

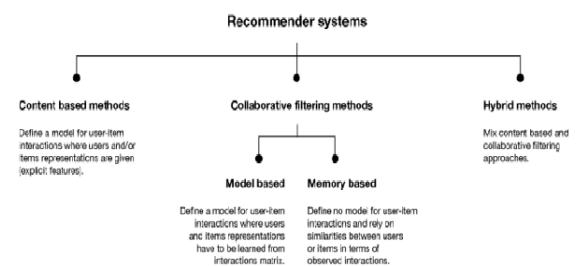


Figure 2: Recommender System

## 2. LITERATURE SURVEY

Zhao, G., Qian “User-Service Rating Prediction by Exploring Social Users’ Rating Behaviors” [1] With the boom of social media, it is a very popular trend for people to share what they are doing with friends across various social networking platforms. Nowadays, we have a vast number of descriptions, comments, and ratings for local services. The information is valuable for new users to judge whether the services meet their requirements before partaking. In this paper, we propose a user-service rating prediction approach by exploring social users’ rating behaviors.

Acıar S, Zhang “Summary of recommendation system development” [2]. A recommendation system is an information service system that connects users and projects: for one thing, it helps users discover potential projects of interest; for another thing, it helps project providers to deliver projects to users who are interested in it. The recommendation system is a powerful system that can add value to the company or business. In the future, it will continue to be researched and developed to bring a better experience to users.

Covington-Adams “Deep Neural Networks for YouTube Recommendations(2016)” [3], YouTube represents one of the largest scale and most sophisticated industrial

recommendation systems in existence. In this paper, we describe the system at a high level and focus on the dramatic performance improvements brought by deep learning.

The paper is split according to the classic two-stage information retrieval dichotomy: first, we detail a deep candidate generation model and then describe a separate deep ranking model. We also provide practical lessons and insights derived from designing, iterating and maintaining a massive recommendation system with enormous user-facing impact.

### 3. METHODOLOGY

Several types of eye movements are studied in eye gaze research and applications to collect information about user intent, cognitive processes, behavior and attention analysis.

**Content Based Filtering:** Content based filtering is a machine learning technique that uses similarities in features to make decisions.

In this, the algorithms designed to advertise that users based on knowledge accumulated about the user.

**Collaborative Filtering:** It is a supervised learning model and an iterative algorithm. It uses classification algorithms for multi group classification problems. After giving an SVM model sets of labelled training data for each category, they are able to categorize new text.

**Adjusted K-MEANS Algorithm:** In this algorithm, in input is the numbers of clusters and items. We get output as a set of cluster. Also, the possibilities of each movie belonging to each cluster centre are represented. On the basis of mean value of objects each object is reallocated to the most matching cluster. Then cluster means are updated and the possibility between objects and each cluster centre is computed

**Cosine Similarity:** The Cosine similarity for two vectors is a measure that calculates the cosine of the angle between them. This metric measures the orientation and not magnitude. The cosine similarity is given as

$$\vec{a} \cdot \vec{b} = \|\vec{a}\| \|\vec{b}\| \cos \theta$$

$$\cos \theta = \frac{\vec{a} \cdot \vec{b}}{\|\vec{a}\| \|\vec{b}\|}$$

### 4. EXPERIMENTAL RESULTS

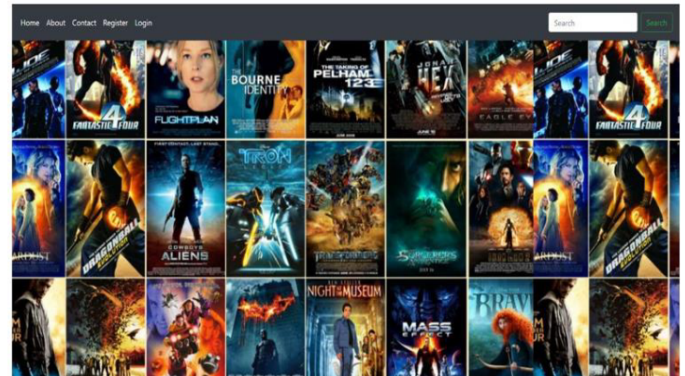


Figure 3: Home Page

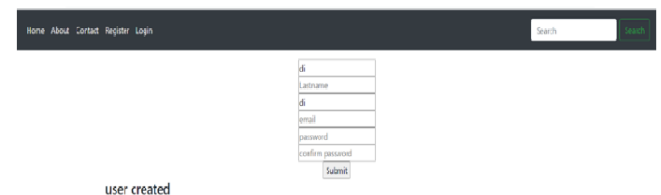


Figure 4: Register page

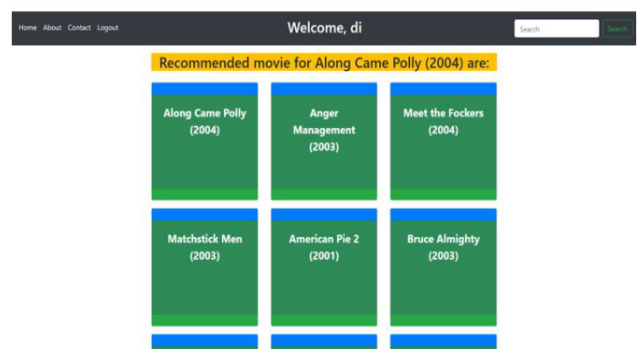
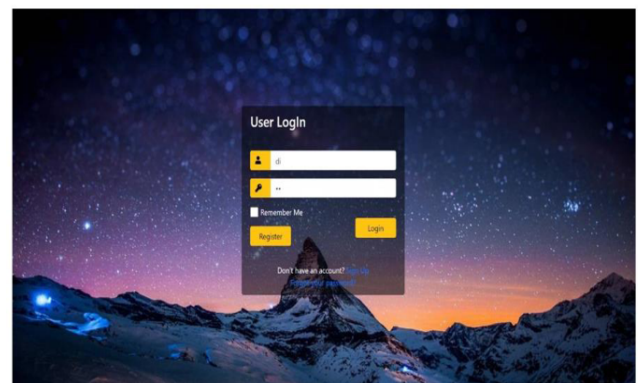


Figure 5: Login Page

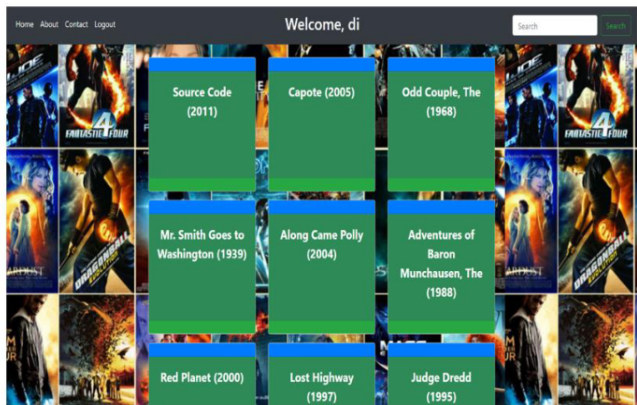


Figure.6: Main Page

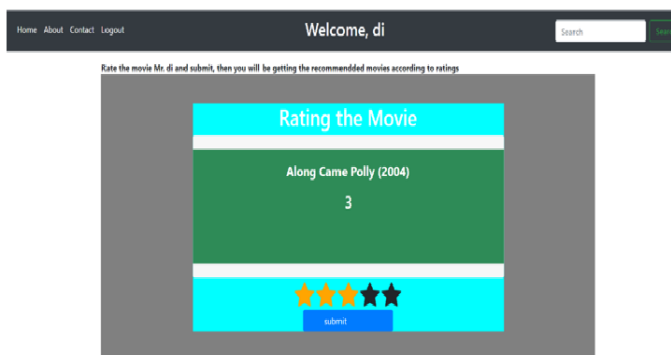


Figure.7: Rating and Recommendations

## 5. CONCLUSION

Recommendation System are the most popular type of machine learning applications that are used in all sectors. Movie recommender system is one of the technologies which is used to extract the movies from the database. This system helps users to watch the movies based on the past information

of the user . This system benefits users by enabling them to watch the movies which they prefer. A recommendation system is an information service system that connects users and projects: on the one hand, it helps users discover potential projects of interest and on the other hand, it helps project providers to deliver projects to users who are interested in it.

Further in future we can build an application such that it can publish on the internet. Datasets are also updated continuously because the rating predictions by the user may change.

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