

Survey on Different Algorithm for Movie Recommendation System

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Abstract : The key to the recommendation system is to predict user performance. Day –by-Day we see huge growth in E-Commerce and this continues growth in the E-commerce field gave the birth of a recommendation system. The recommendation system is done of different methods by using user- similarly, content-based method, collaborative filtering, Hybrid Models, and many more with various algorithms and accuracy.this essay critically examine how various algorithms perform and which of each algorithms performs with better accuracy between all of them .the most better accuracy c by this origination of recommendation system, there are various types of recommendation available in the market nowadays and each and every recommendation system works on distinct appearance like the interest of users, history of users, location of users and many more. In this process, we will generally discuss the movie recommendation system. Movie recommendation Engine will recommend movies to the users on the basis of their interest as well as rating and reviews by other users whose item interest is similar to eachother. This engine will work on the user similarity Model.

IndexTerms - User-Similarity, Content-Based Method, Collaborative Filtering, Hybrid Models, Movie Recommendation Sysytems

I. INTRODUCTION

As we all know about that, the world is faster growing in field of technology it produces data in bulk in every second than ever before. Each one and every person is helter-skelter for their eventual goals. Nowadays there is rapid growth in all sectors. Development is done in all sectors including many sectors one of the most rapidly growing fields is online business. Going through towards online business we people didn't have face lots of problem like going to market buy a particular product one from there and one from somewhere else and we don't have time to choose the object from the collections. The online business platform helps to reduce our time.

As the online market grows exponentially then it is obvious that the competition will also enter in particular fields. At that time the owner of their respective sites need to attract their users by providing attractive facilities and for this one of the facilities that are given to the user by the owner is the recommender Engine. Recommender Engines are the most recognizable machine learning techniques in use today. The site that recommends Engine for better growth in their businesses is Amazon, Flipkart, Netflix, Myntra, etc. The vast information is available over Electronic Platform. The recommender system was come out with in the halfway-90s that one may ease the above process. Recommendation Engine works on user-Similarity where the recommendation done on their ratings and reviews on any type of product where two users give some kind of response.

Today consumers in the globe of the world wide web and its correlate information detonation encountered wit the problem of so many choices. From looking for a restaurant for food to looking for a good investment there are many options. And due to these numerous options, consumers get confused about which option is best to choose for better output for the future and to resolve this problem companies have uploaded a recommendation system to guide consumers. Recommendation Systems are different expertise types of expert systems. Works on user's Preference to filter all Information available about the consumers and by filtering process provide users with the most relevant information.Recommendation Engine works on Archive data (Historical data) by applying Methods like collaboration filtering, a content-based approach where Historical data helps to recommend new items based on custom interest ratings and reviews about the product.

2.Literature Survey

Gaurav Arora, Ashish Kumar, et.al(2014)[1]. They said their system will provide more precise results as compared to the existing system. The existing system works on individual user's ratings. They choose to explore the movie niche this is the area of their project. Movie websites (INDB, Aulmovies) they categorize movie by metadata such as genre, era, directors, etc. A system built on Windows 2007 Operating System. Advance Java technology along with machine learning concepts. For data storage use MYSQL based on a three-tier architecture. The web service layer provides the android user to rate Movies.

George Lekakos, Petros Caravelas (2006)[2]. They work on More system that system is browser-based freely available recommendation system. That collects the data on the basis ratings of the users and also in the matter of Movies. One problem in most of the System is (new user problem). The movies deliver to the user interface is basically depend on measure computed as $\log(\text{popularity})$ entropy gathering classifications are standardized in a customer X item matrix. They used Hybrid algorithm . Most of the systems use movielens dataset. user classification furnished by 6040 original movielens users for about 4000 movies. Dense user rating matrix is 95.8%.

Eyrun A.Eyjolfssdottir, et.al [3] They used development of 'thinking' computer systems recommendation called MovieGEN. applying ML and CA work on a content-based of SVM techniques. With the help of this model they can predict the genres and the period of the movies K-Means used for Cluster Analysis SVM tool used LIBSVM Library Written in Java.

M.Sandeep Kumar, J.Prabhu (2020)[4] In this paper they introduce a Hybrid Model information filtering system system with a merger of K-Means clustering and ant colony optimization technique (ACO-KM). ACO-KM work on the basis of correctness, reminiscence, mean square fault (MSF) and certainty. Dataset MovieLens, their approaches give the best result of 42.24 compared with the existing one of 53.22. K-Means algorithm used for Primary Clustering System. The dataset consists of 100,000 category, 943 customer, and 1,682 motion picture of scale 1-5. Dataset is splitted into two distinct case. Dataset is divided into 80% as training data and the remaining 20% as test data for confirming the result.

Ramni Hrbir Singh, Sargam Maurya, et.al (2020)[5] In this paper Using cosine similarity and KNN. Recommender Engine aims to predict 'inclination' or 'classification' provided by an item. They used cosine similarity, Euclidian distance, Pearson's Correlation. Their code is done by using Numpy and Panda libraries.

Table 1 :- Comparison of different movie recommendation System Algorithm

| Problem Domain | Dataset | Algorithms | Accuracy |
|--|---|---|--|
| Movie Recommendation based on user's similarity | IMDB, AOL Movie | Eculidean Algorithm | NA |
| Hybrid approach for movie recommendation | Movielens | Hybrid Algorithm [collaboration filtering and contend based filtering] | 95.8% |
| Movie GEN: A recommendation engine for movie | Movielens | Machine learning(ML) and cluster Analysis(CA) | NA |
| Hybrid model | Movielens | K-Means clustering & ant colony optimization [ACO-KM] collaborating filtering | 80% |
| Movie recommendation system | (http://movielens.org) | Cosine similarity and K-Nearest neighbor algorithm (KNN) | 95.4% |
| Movie recommendation system based on Movie swarm | Movielens | Mining , IPM | - |
| MOVREC : Recommender System | Different types of data | K-Means Algorithm | NA |
| Content-Based Movie Recommendation System | Movielens Dataset | Content-Based | Computing dot product result accurate. |

3. Problem Identification

After Analysing different research Paper Based on Movie Recommendation System by applying different Algorithms and Methods. Some Researches used Hybrid approaches like Collaboration filtering and content-based filtering method and Algorithms like K-Nearest neighbor (KNN), Euclidean algorithm, K-Means clustering, ant colony optimization (ACO), Cosine similarity, and many more. Where in K-Means Clustering K is the desired number of clusters this algorithm aims at minimizing an objective function.

Finally, we can say that the various approaches proposed by various researchers in research papers. An earlier study researchers Manoj Kumar, D.K.Yadav, et.al (2015) found that the Recommender Engine MOVIEGEN had certain drawbacks such as, it asks a few series of question to the user which was time taking and also it was not user friendly for the fact that it proved to be stressful to a certain extent and later than keeping in mind all those problems faced by using MOVIEGEN they develop Movie REC that recommends Movies to the user based on the information provided by the users themselves.

4. Proposed Methodology

By Exploring various Machine Learning Algorithms for the Recommendations of a Movie we conclude that there are different methods that can be applied for a strong Recommendation Engine and also have some drawbacks. Most of the Researchers classify the recommender system in two broad categories:-

- 1.1 Collaborative filtering approach
- 1.2 Content-based filtering approach

1.1 Collaborative Filtering Approach

Collaborative filtering is another technique of recommendation system. the collaborative recommendation system is on user similarity-based. the below fig. shows how collaborative filtering(CF)work ing a simple manner.

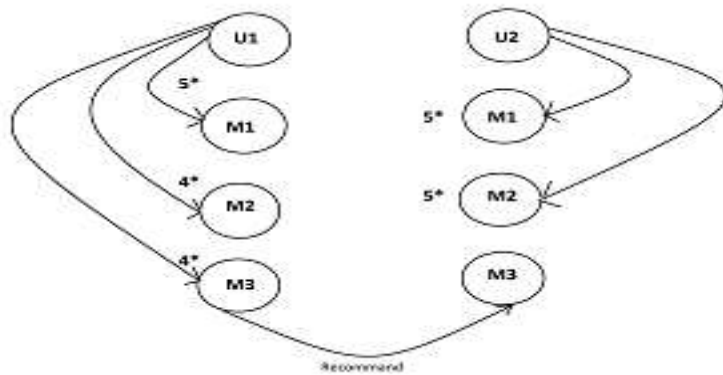


Fig 1.collaborative filtering based on user similarity.

In this figure, U1 and U2 watch same movie and rate and review according to their interest so then the movie which not seen by U2 should be recommended by U1 rating because here collaborative filtering work on user similarity-based.

1.2 content-based filtering

The content-based recommendation system is Item similarity-based. from the below figure we take an example to suppose there are two users [U1 & U2], .both have same movie genre, for example, their movie genre is Adventure genre. U1 and U2 watch M1, M2 adventure genre movie with same rating and review here U2 watch M3 but U1 didn't watch it yet and due to both have same liking genre we can predict that probably U1 also like M3.so we recommend for M3 to U1.

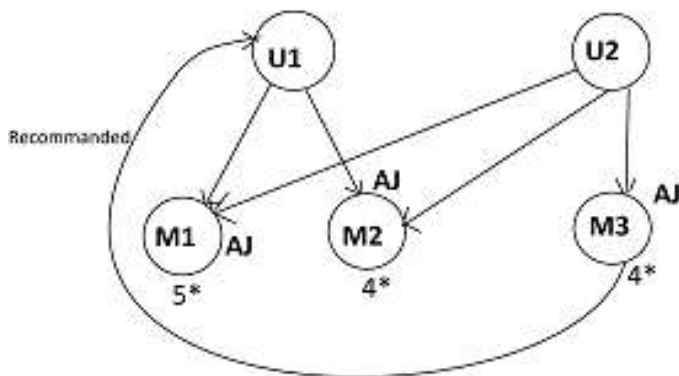
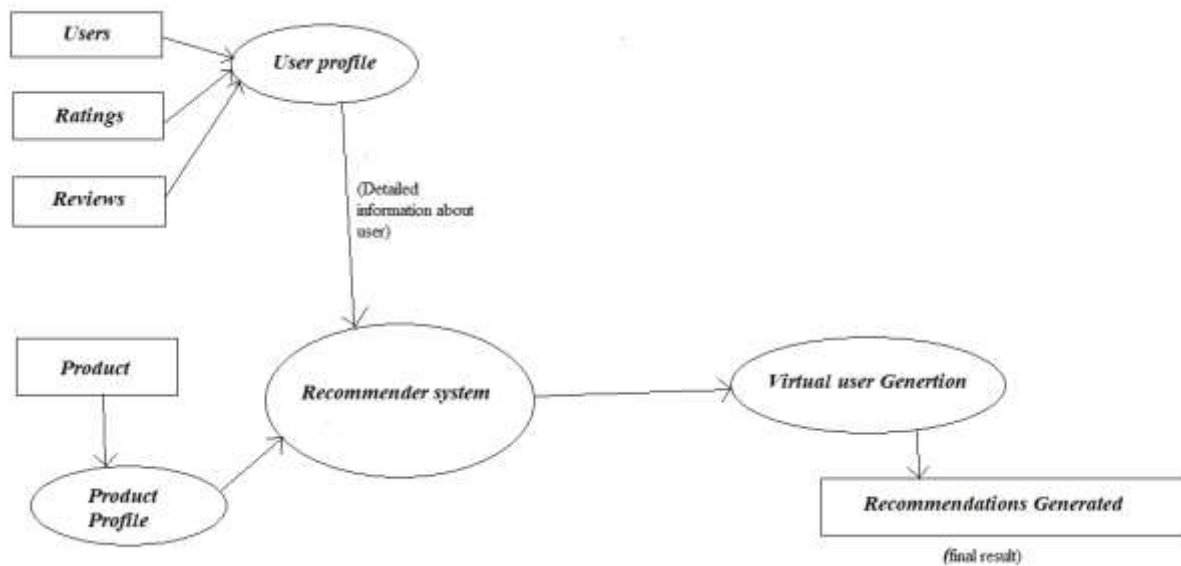


Fig 2.content based recommendation system

Where, U1 & U2= users , M1,M2,M3= movies ,Ag=Adventure genre , Movies= items.



Fig

3. proposed data flow diagram for recommendation system

5. CONCLUSION

In this paper, we study a comparison study of different algorithms for the movie Recommendation System. Now a day's recommendation system has changed the style of searching for things of our interest. We see that Recommendation Engine Work on previous data of user's Engine work On the past history of user's ratings and review the action of user's helps the Recommendation Process BY Using different Method and Algorithms. Now, here we are going to use collaborative filtering and a Hybrid approach for our recommendation system by detecting and removing outliers from our dataset for better results.

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