

Movie Recommendation System Using Collaborative Filtering

Prof. Pallavi Sambhare¹ Arya Thorat² Suryaja Chedde³

¹Assistant Professor

^{1,2,3}Department of Information Technology

^{1,2,3}G.H Raison College of Engineering, Nagpur, India

Abstract — Movie recommendation system is a publicly demanding system as everyone wants to easily view and land upon their interests. A Movie recommendation system uses past records of people to recommend them movies similar to their previous interests. It provides a new way to find things of our interest. It predicts interests of users by studying their previous preferences. It analyzes them and suggests best movies to watch at that time. It also sorts movies according to its ratings. In this project, we are building this system using collaborative filtering algorithm to provide an efficient user interface. User experience of movie streaming platforms will enhance by usage of this system as it will ease the process of searching desired movies. The similarity metrics generated using the data of users, movies items and their ratings help for providing recommendations. For users, it will also find unknown movies having similarities with their interests.

Keywords: Recommendation System, Collaborative Filtering, Movies, User Experience, Movie Streaming Platforms, User Behaviour

I. INTRODUCTION

In this fast world where we prefer easy and quick access to our interests and priorities, a recommendation system that will bring to you movies of your best choice is highly appreciated. The movie recommendation system has opened new doors to reach customer satisfaction by providing them best user experience. It assesses the characteristic features of user behaviour and comes up with an outcome. The system helps to filter movie preferences of the users on the basis of favourite genre, actors, production, language, song producers, etc. It is used by movie streaming platforms such as Amazon Prime, Netflix, etc. Such platforms record user behaviour and suggest most likely engaging items to them. The system proposed here has its objective to suggest movies to users which are of their interests after filtering all movies from the list. The machine learning algorithm of recommendation system is dedicated to study behaviour of users and their preferred choices. Its aim is to suggest movies watched by users of similar interests to every user by method of collaborative filtering. In collaborative filtering, similarity metrics is used to establish similarities between users and their choices. This technique generates effective predictions after evaluating the data of users.

Collaborative filtering is content dependent which means it works around the data of users. Though, new movie items cannot be easily recommended accurately using it as there are no user ratings available. Also if ratings of other users having similarities are considered, there is possibility that the target user may not agree with the recommendation. But this system is very prominent for recommendation systems. It is widely used and efficient for fulfilling its objectives.



II. LITERATURE SURVEY

For consumer industry, recommendation system has become an essential part as it can take users to their desired items without user making any extra efforts. All the recommendation systems proposed and built use various algorithms best fit for the particular case. The system uses data records of user behaviour to create a business model. It has to achieve scalability and effective practical implementation. There are many papers explaining movie recommendation systems using different methodologies. Many studies and efforts for advancements for this system are being done. They are in demand and are believed to have more usage further. These systems will continue to provide easy and choice ridden movie experience to the users. They will evolve further after taking and studying customer feedback for making it better. Intense filtering of movie choices will be done by taking into consideration more factors and records. They will also notify users about trending movies. They will provide great user interface and will help users to find movies easily. These systems can also be integrated with new features like voice command assistance and integration with other apps to gather more user specific information. Hence, this system will continue to be a necessity for movie watchers.

III. PROPOSED METHODOLOGY

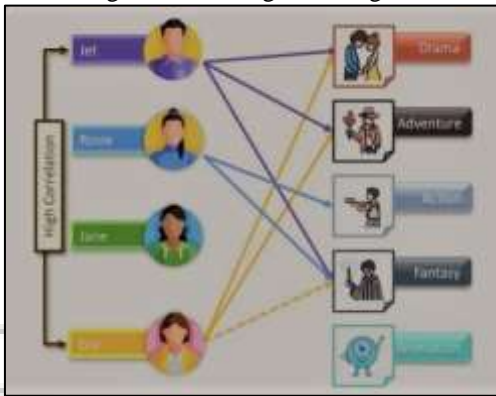
Filtering of movies for users can be done by various algorithms like demographic filtering, content based filtering and collaborative filtering. Demographic filtering uses demographic data of users and then recommends them appropriate movie. Content based filtering uses various features of movies (genre, actors, etc.) liked by the particular user to suggest them other movies with similar features. These two methods only considers single user choices and has a smaller range. Collaborative filtering suggests movies to a user which are similar to his choice as well as which were watched by another person having same preferences.

Therefore, collaborative filtering covers the shortcomings of the earlier mentioned methods and is crucial for intricate analysis of data for recommendation.

Thus here in this system, the method of collaborative filtering is adopted. This system is built using algorithm of collaborative filtering which will let us deeply study user choices and provide effective output. This method is highly effective and covers wide range of items. There are two types of collaborative filtering used-

A. User-user based collaborative filtering:

This system identifies similar users based on their past liked choices and their ratings for the movies. The most likely movies to be watched are then suggested to users. But as user preferences change, this filtering method gets affected.



B. Item-item based collaborative filtering:

In this, similarities between two or more movies are found and then those similar movies are recommended to a user. This system solves the problem of user-user based collaborative filtering as over a period of time the item is not changed.

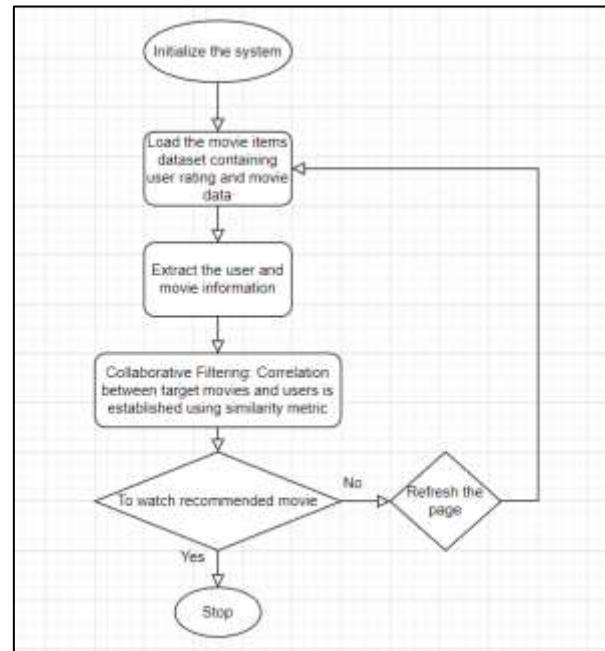


These algorithms will memorize and model data records and generate recommendations for users.

Thus, similarities are identified between users. For this, the technique of similarity metrics is used to determine same behaviour of set of users for particular item. This technique generates a matrix of user and item ratings. In this a row represents a user and a column represents a movie. This sparse matrix is used to predict the ideal movies for user. For the movies which are not yet rated by users, the ratings of other users having similar preferences is considered. Then, cosine similarity is used to compute similarity between target user and other similar users. The predicted rating by similarity metrics is then used to recommend movies to the target user.

If the recommendations are not useful then users can refresh the page to again gain other movie options. For this, the system again evaluates the ratings, users and movie items and renews the recommendations.

C. Flowchart-



IV. CONCLUSION

This paper give us a brief idea about movie recommendation system. This system aims to give finest movie recommendation to users according to their choices. We have used collaborative filtering algorithm which study the users movie preferences, personal interests and suggest movies based on similar user who gives rating to the movies. This method also improve accuracy for movies recommendation. It uses similarity metrics

Movie watching platforms are at the peak of their popularity and will continue to gain more. These systems will continue to provide easy and choice ridden movie experience to the users.

REFERENCES

- [1] <https://www.google.com/amp/s/techvidvan.com/tutorial/s/movie-recommendation-system-python-machine-learning/%3famp=1>
- [2] Research Paper on Movie Recommendation System (ijraset.com)
- [3] https://developer-blogs.nvidia.com/wp-content/uploads/2021/04/Whats-recommendation-system_Pic-2.png
- [4] <https://images.app.goo.gl/nv0RaHyyPW5efGe8>
- [5] A Brief Guide to Movie Recommendation Systems Using Machine Learning (labeledyourdata.com)
- [6] <https://data-flair.training/blogs/wp-content/uploads/sites/2/2019/07/recommendation-system-project-in-R.png>
- [7] Rajarajeswari, S., et al. "Movie Recommendation System." Research in Information, Computing,

- Communication and Applications. Springer, Singapore, 2019. 329-340.
- [8] Arora, Gaurav, et al. "Movie recommendation system based on users' similarity" *International Journal of Computer Science and Mobile Computing* 3.4 (2014): 765-770.
- [9] Subramaniaswamy, V., et al. "A personalised movie recommendation system based on collaborative filtering." *International Journal of High Performance Computing and Networking* 10.1-2 (2017): 54-63.
- [10] Choi, Sang-Min, Sang-Ki Ko, and Yo-Sub Han. "A movie recommendation algorithm based on genre correlations." *Expert Systems with Applications* 39.9 (2012): 8079-8085.

