"MOVIE RECOMMENDATION SYSTEM USING MACHINE LEARNING"

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Abstract- This paper focuses on online recommendation engines, which are having a big impact on our decisions about movies among other things. The study focuses on movie recommendation systems, critically assesses the work that has been done so far, and emphasizes research publications that have been useful in overcoming challenges. Despite the advancements made thus far, more study is required to improve the efficacy and accuracy of recommendation systems across a wider range of applications.

Keywords- Machine Learning, Recommendation system, Recommender, Movies, cosine similarity,

I. INTRODUCTION

Every day, technological development soars to new heights, which has caused the amount of information to grow dramatically. We use machine learning, which automates the creation of analytical models, to handle such massive amounts of data. Three broad categories make up the early classification of machine learning: Supervised learning, unsupervised learning, and reinforcement learning.

Without being explicitly programmed to do so, machine learning algorithms create a model from sample data, also referred to as training data, in order to make predictions or decisions. Machine learning algorithms are used in a wide range of applications, including recommendation systems, speech recognition, email filtering, computer vision, and many more, where it is challenging or impractical to create conventional algorithms to carry out the required functions.

Machine learning is a branch of artificial intelligence that focuses on the study of algorithms that get better with the usage of data and experience. Training and testing are the two stages of machine learning. Machine Learning provides an efficient platform in the medical field to solve various issues at a much faster rate.

Movies are an important component of life. There are many different kinds of movies, some for entertainment, some for education, some for children which are animated, and some that are horror or action movies. The genres which make up a movie, such as comedy, thriller, animation, action, etc., make it simple to distinguish between them. Movies can also be distinguished from one another by their release year, language, director, etc. When watching films online, there are many titles to look for in our list of favorite films.

When browsing the internet today, whether purchasing a product from an e-commerce site or watching a movie on a video-on-demand service, the recommendation system framework is crucial. We rely on recommendations made by others in our daily lives, whether they come from personal recommendations or evaluations of broad surveys. People frequently use online recommender systems to decide on the items that are relevant to their choices.

The purpose of recommendation systems, which are software tools and techniques, is to provide a group of users with practical and informed recommendations for goods or services that might be of interest to them. In other words, recommendation systems are a subset of information filtering systems that aim to predict the "preference" or "rating" that will be given to an item

II. PROBLEM STATEMENT

We strive to build a movie recommendation system that aids individuals in finding movies of their interest because we waste our quality time looking for movies, which is the main purpose behind this project.

III. PROPOSED SYSTEM

In the proposed system, a movie recommendation system is built using a Machine Learning algorithm that is Cosine Similarity. Based on the user preference that is entered by the user the movies will be recommended. In this recommendation system, we are going to recommend the top 5 movies related to their preference

In this recommender, there 5 movies are recommended so users can watch any movie according to their interests and save time.

IV. LITERATURE REVIEW

R. E. Nakhli, H. Moradi, and M. A. Sadeghi [1], In this paper, proposed the recommendation system using the percentage view criteria which helps to get the suggestions.

Aishwarya P, Anup Jung Shah, and Ashrita Kashyap [2], proposed the movie recommendation system using MOVREC technology.

Munoz-Organero, Mario [3], In this paper he proposed a Collaborative Recommender System Based on Space-Time Similarities

Nisha Sharma and Mala Dutta [4] proposed an overview survey on the recommendation system which contains all details about the recommendation system.

Peng, Xiao, Shao Liangshan, and Li Xiuran [5], In this paper the electronic commerce recommendation system has a similar look and makes a specialty of the collaborative filtering algorithm in the utility of a personalized film recommendation system.

Sharma and Maan [6] in their paper analyzed various techniques used for recommendations, collaborative, hybrid, and content-based recommendations. Also, it describes the pros and cons of these approaches.

Bhavya Ghai, Joydip Dhar, and Anupam Shukla [7], In this paper, examine multi-level ensemble learning with regard to recommender systems and critique traditional ensemble learning. They place greater emphasis on developing recommender systems employing stack generalization in this.

Nagamanjula R and A. Pethalakshmi [8] in their paper proposed a novel scheme for the use of user similarity and opinion mining for the recommender system

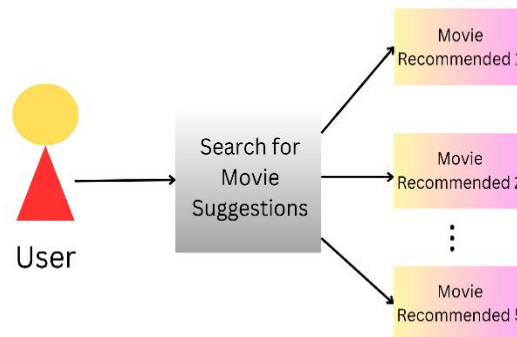## V. SYSTEM ARCHITECTURE AND DESIGN

5.1 Architecture Design

Fig. 5.1 Block Diagram

As shown in Fig 5.1, the proposed system consists of three entities a user and a search for a movie suggestion gateway connected to the admin of the system. Each of the above entities of the system has its significance. The specific roles and functionalities of each are discussed below:

1. User: The user will search for the movie of his choice or suggestion. The user will get the results or recommendations out of his search.

2. Recommendation System: The system will generate recommendations or suggestions according to the user search.
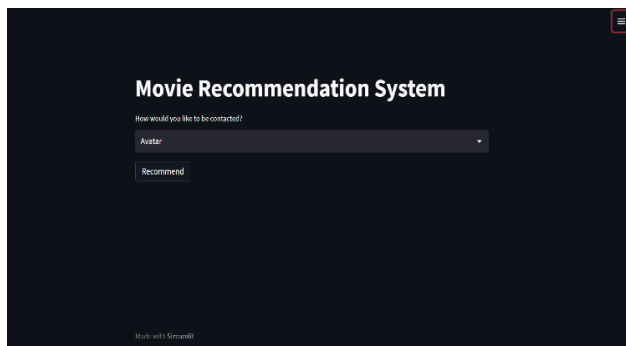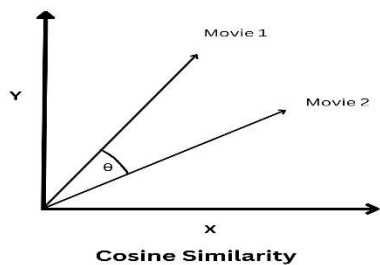
5.2 User Interface Design

Fig. 5.2 User Interface

VI.   IMPLEMENTATION

Cosine Similarity

Cosine similarity is a popular technique for measuring the similarity between two movies in a recommendation system. Here are five steps to understand how cosine similarity works

Preprocessing: The first step is to preprocess the data by creating a matrix of movies and their features (e.g., genre, cast, director, etc.). The matrix should be normalized to avoid bias towards any particular feature.

Vectorization: The next step is to convert the matrix into vectors using numerical values. Each movie is represented by a vector that reflects its features.

Similarity measurement: To measure the similarity between two movies, we use cosine similarity, which calculates the cosine of the angle between the two vectors. This value ranges from -1 to 1, where 1 indicates perfect similarity, 0 indicates no similarity, and -1 indicates perfect dissimilarity.

Calculation: The cosine similarity formula involves multiplying the two vectors and then dividing the result by the product of their magnitudes. This gives us a score that represents the degree of similarity between the two movies.

Recommendation: Finally, the movies with the highest cosine similarity scores are recommended to the user as they are likely to be similar to the movie they have shown interest in. The recommendation system continues to iterate and refine recommendations based on user feedback.

VII.   RESULTS

In the system, we have used cosine similarity for the recommendation of movies. When the user will input or search for the movie name according to the disease it will show whether the patient has a disease or not according to the disease selected.
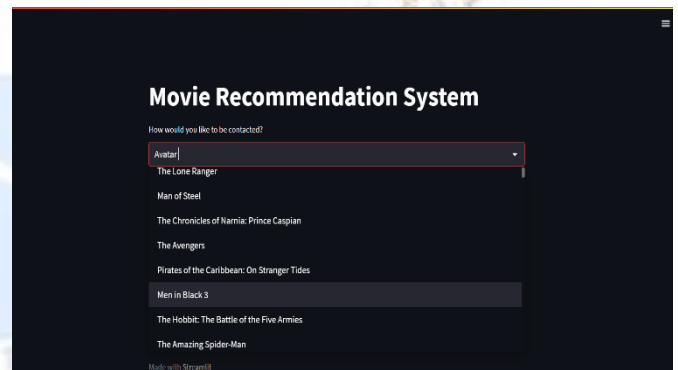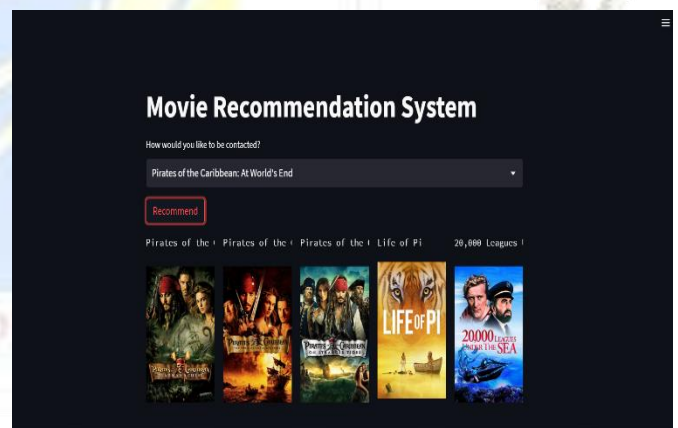

Fig. 7.1 Search for a Movie

Fig. 7.2 Movie Recommendation as Output

VIII.   CONCLUSION

In this proposed work, the aim of this project is to recommend multiple movies based on your preference. The project is built in such a way that the system takes the user's favorite movies as input and generates an output, which is nothing but the top 5 recommendations related to the input

This model can help to reduce the time required in finding a movie based on the last watched movie.

IX.   FUTURE SCOPE

In the future, we can add more movies in our database from different movie sources to the existing recommendation system. We can try to improve the posters to be interactive. Also, we can try to make the system more user-friendly by adding new features to it.

ACKNOWLEDGEMENT

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