CNN BASED MOVIE RECOMMENDATION SYSTEM

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ABSTRACT:

Amusement gets back our certainty for work and we can work all the more energetically. For refreshing ourselves, we can pay attention to our favored music or can watch films of our decision. For watching positive films online we can use movie recommendation systems, which are more solid, since looking of favored movies will require more and more time which one can't bear to waste. In this we are using collaborative filtering with SVM, Genetic Algorithm and KMEANS to form hybrid recommendation algorithm to recommend movies to users. First SVM algorithm will be applied to select similar movies and then apply KMEANS clustering and genetic algorithm to get optimal result and this optimal result can be produce as the movie recommendation for the user. In this paper, we are using advance deep learning CNN (Convolution Neural Network) and this CNN algorithm is using almost in all fields such as image classification, disease prediction, object detection and many more. CNN algorithm giving better accuracy, precision, recall and FMEASURE, Best movie recommendation for the user compare to SVM algorithm.

Keywords: CNN (Convolution Neural Network), Recommendation System, SVM algorithm.

INTRODUCTION:

Films are an integral part of life. There are various sorts of movies like some for amusement, some for instructive purposes, some are animated Films for kids, and some are thrillers films or battle films. Movies can be effortlessly separated through their classes like parody, spine chiller, activity, activity and so on Alternate method for recognizing among films can be either by releasing year, chief director, language or by cast and so on.

For watching motion pictures on the web, there are various films to search in our most preferred films. Film Recommendation Systems assists us with search through our favored motion pictures among these various kinds of motion pictures and consequently lessen the difficulty of investing a great deal of energy searching through our ideal motion movies. Thus, it necessitates that the movie suggestion

system ought to be truly solid and ought to furnish us with the proposal of movies which are accurately same or generally coordinated with our preferences. There are numerous film suggestion systems which accomplish this work for us dependably yet since there are a great deal of films and gigantic number of clients on the web and furthermore both are expanding step by step, because of which there is a compromise in the nature of the film recommendation systems.

Over the most recent couple of years, with the step by step expansion in the social networking mania on the web, loads of data is getting created on the web. This increment in the measure of the information on the web and furthermore the progression of information on the web at an energetic speed makes it dangerous for the users to deal with the data satisfactory tools. To annihilate the over-burden of the data, recommendation framework is utilized as data separating tool in social networking sites. Thus, there is a colossal extent of investigation in this field for further developing scalability, exactness and nature of film recommendation frameworks.

LITERATURE SURVEY:

An Improved Collaborative Movie Recommendation System [4] Proposed the framework takes in the users' very own data and predicts their movie inclinations utilizing well trained (SVM) models. Based on the SVM prediction it selects movies from the dataset, clusters the movies and generates questions to the users. Based on the users' answers, it refines its movie set and it finally recommends movies for the users.

Web-based Movie Recommendation System [3] Proposed the movie recommender system for providing trustworthy movie ratings. Most of the movie recommender systems do not consider the unfair rating problem but the emotion evaluation. Then our approach performs the correct assessment against unfair rating.

Movie Recommendation System based on Movie Swarm [6] Propose a movie recommendation system that has the ability to recommend movies to a new user as well as the others. It mines movie databases to collect all the important information, such as, popularity and attractiveness, required for recommendation.

PROBLEM DEFINTION:

For watching movies on the web, there are various films to search in our most enjoyed movies. Movie Recommendation Systems helps us to search our preferred movies among all of these different types of movies and hence reduce the trouble of spending a lot of time searching our favorable movies. So,

it requires that the movie recommendation system should be very reliable and should provide us with the recommendation of movies which are exactly same or most matched with our preferences.

PROPOSED APPROACH:

Hybrid approach by combining content based filtering and collaborative filtering, using Support Vector Machine as a classifier and genetic algorithm is presented in the proposed, Extension Deep Learning CNN (Convolution Neural Network) Recommendation Algorithm methodology and comparative results have been shown which depicts that the Extension approach shows an improvement in the accuracy, precision and recall of the movie recommendation system.

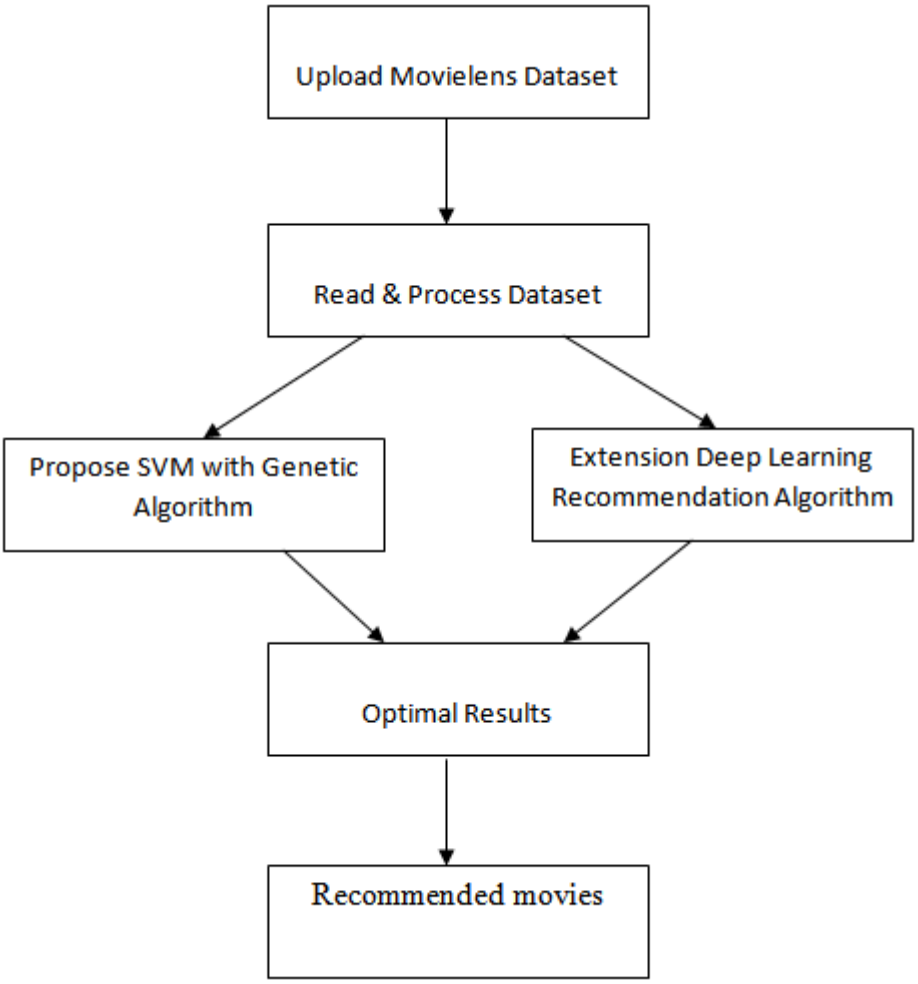

Figure 1: The Architecture

PROPOSED METHODOLOGY:

In the proposed framework we are using advance deep learning CNN (Convolution Neural Network) and this CNN algorithm is using almost in all fields such as image classification, disease prediction,

object detection and many more. CNN algorithm giving better accuracy, precision, recall and FMEASURE, Best movie recommendation for the user when compared to SVM algorithm.

RECOMMENDATION SYSTEM QUALITY MEASURES:

The typical quality measures such as Mean Absolute Error, precision, recall, f-measure and coverage are used for analyzing the quality of our proposed movie recommendation system and the results will be compared with the results of the existing pure content based or collaborative filtering movie recommendation system which are also have been implemented by us.

DATASET

We have used dataset available in Movie Lens, which is generated by the group lens research team for the research work in the field of recommender system, to help developers to evaluate their recommendation systems. Dataset consists of movies, users and ratings.

RESULTS:

PROPOSE SVM WITH GENETIC ALGORITHM

Propose SVM with Genetic Algorithm Performance Metrics Result
Accuracy : 85.35000000000001
Precision : 81.80204364995835
Recall : 71.44321434134433
FMeasure : 76.25867629752635

In above results with SVM we got 85% accuracy and we can see precision, recall and FMEASURE for SVM algorithm.

DEEP LEARNING RECOMMENDATION ALGORITHM

Extension Deep Learning CNN Algorithm Performance Metrics Result
Accuracy : 96.46428571428571
Precision : 97.23968042746624
Recall : 96.96273621377655
FMeasure : 97.09345476639683

In above results with Deep learning CNN we got 96% accuracy when compare with SVM

Accuracy Graph

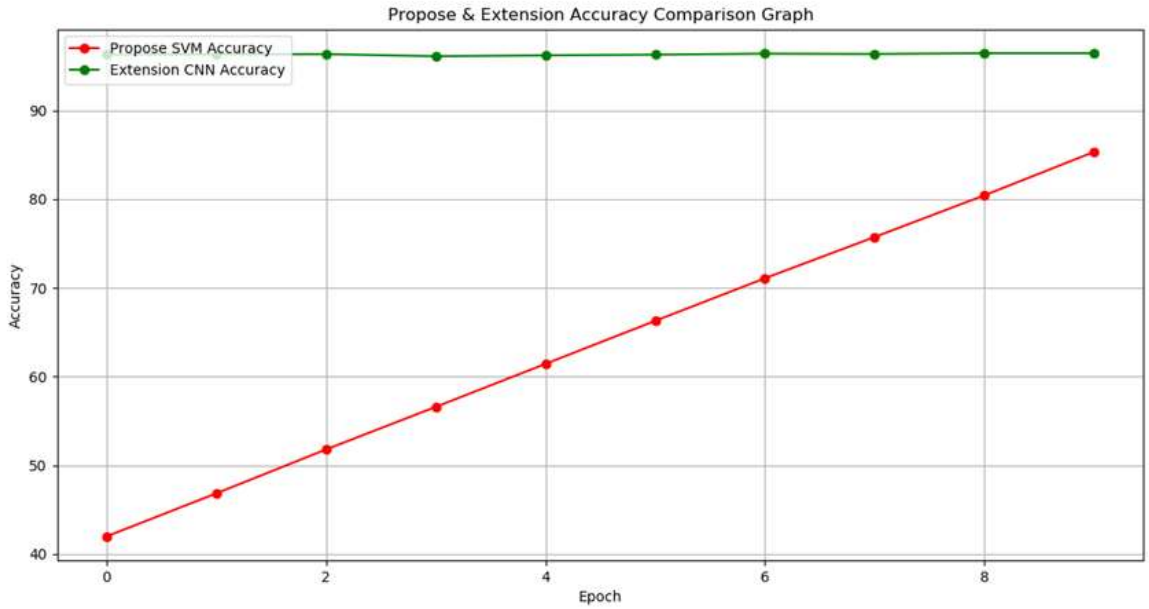

Fig 2: Accuracy Graph

In fig 2 x-axis represents epoch/iterations used to generate model and y-axis represents accuracy and in above graph red line is for propose SVM and green line is for extension CNN algorithm and we can both algorithm accuracy increases with epoch increasing and SVM accuracy starts from 40 and increase to 85 and CNN accuracy starts from 95 and goes to 96%. From above graph we can conclude that CNN is giving better accuracy.

Precision Graph

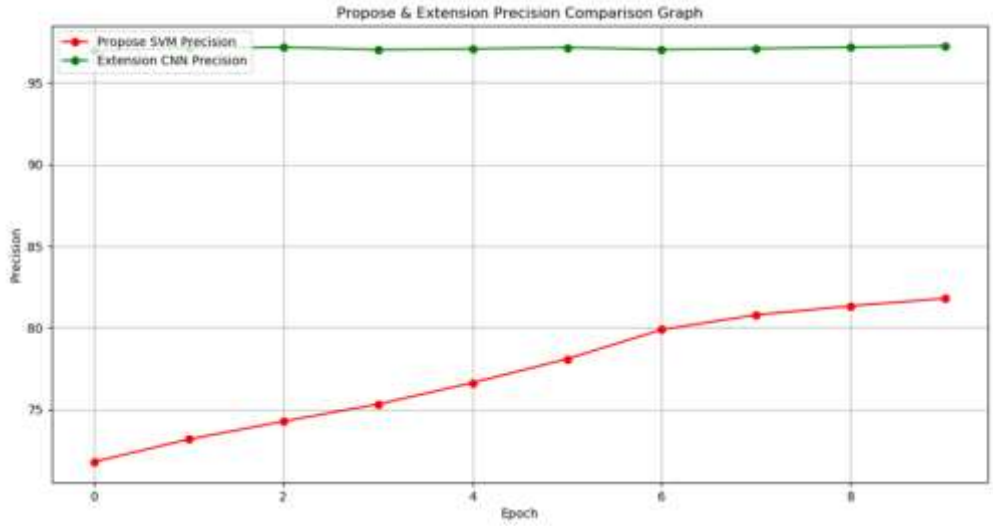

Fig 3: Precision Graph

Recall Graph

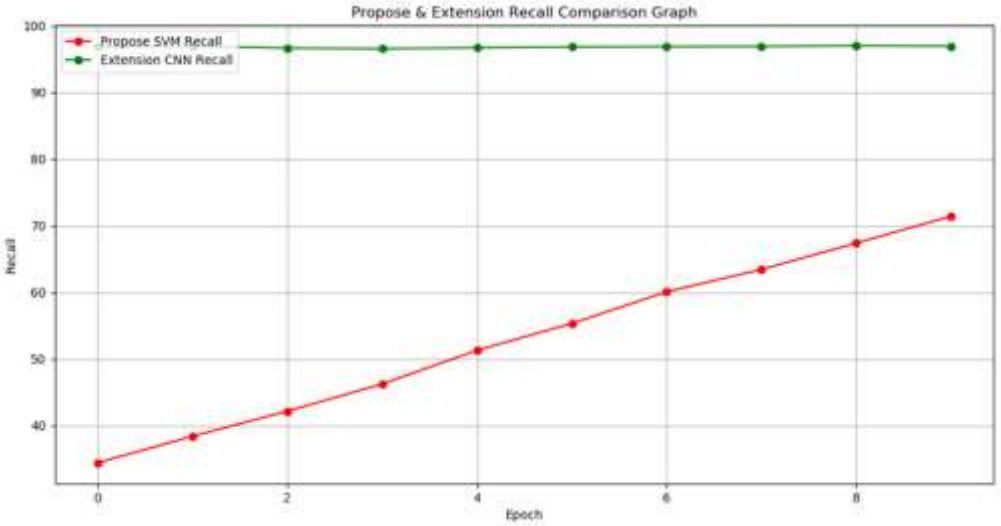

Fig 4: Recall Graph

FMEASURE Graph

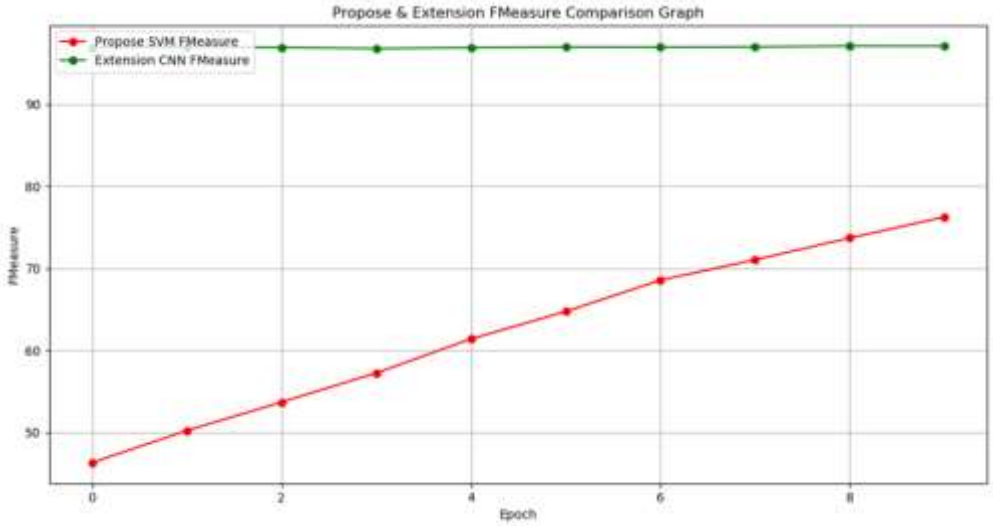

Fig 5: FMeasure graph

All comparison graphs we can see CNN perform better than propose SVM with genetic algorithm.

Recommend Movies

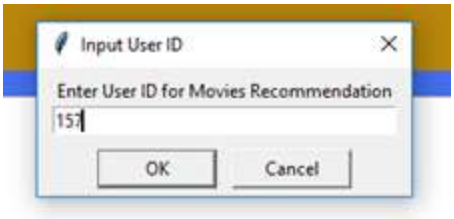

Fig 6: User Id For Movie Recommendation

Enter any user id from dataset then CNN algorithm will give recommended movies

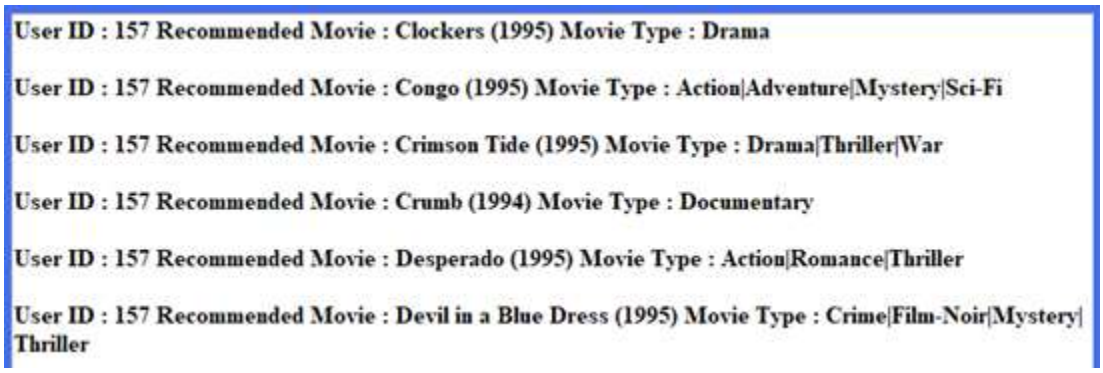

Fig 7: Recommend Movies

In fig 7 user 157 application displaying top 5 recommended movies.

CONCLUSION:

In this paper, to improve the accuracy, precision and recall of movie recommendation system we are using advance deep learning CNN (Convolution Neural Network) and this CNN algorithm is using almost in all fields such as image classification, disease prediction, object detection and many more. CNN algorithm giving better accuracy, precision, recall and FMEASURE, Best movie recommendation for the user compare to SVM algorithm.

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