VIDEO RECOMMENDER SYSTEM BY ANALYSING USER'S HISTORICAL BEHAVIOUR SIMULATING NETFLIX RECOMMENDER SYSTEM

K. Sai Mounika[1], P. Manga[2], V. Vaishnavi[3] , G. DIVYA[4]
B. Tech student[1,2,3] Assistant Professors [4]
Department of IT, CMR TECHNICAL CAMPUS, HYDERABAD

ABSTRACT: Videos are a great type of content to share information. Videos are one of the most consumed content on Internet and uses use a big fraction of Internet consumption. Many Websites are into Video Streaming business because the market is huge. The more videos watched, more money will be made by the website. Thus they are implementing systems to suggest correct videos to the user which will increase interaction and screen time. The suggestions could be based on different parameters, for example, things focused by the company/ website, customer's qualities, likes of the customer and other data for example, demographic, age or other statistic data of past content consumption. In this project, a Video Recommender System is proposed which utilizes content based filtering technique for recommending the right Video Media to the customer. The content based filtering technique doesn't requires a big amount of data to get trained and can work on significantly less amount of data even from a single customer. The Algorithm used here is Cosine similarity.

INTRODUCTION

During the last few decades, with the rise of you tube, Amazon, Netflix and many other such web services, recommender systems have taken more and more place in our lives. From ecommerce (suggest to buyers articles that could interest them) to online advertisement (suggest to users the right contents, matching their preferences), recommender systems are today unavoidable in our daily online journeys. In a very general way, recommender systems are algorithms aimed at suggesting relevant items to users (items being movies to watch, text to read, products to buy or anything else depending on industries).Recommender systems are really critical in some industries as they can generate a huge amount of income when they are efficient or also be a way to stand out significantly from competitors. As a proof of the importance of recommender systems, we can mention that, a few years ago, Netflix organized a challenge (the "Netflix prize") where the goal was to produce a recommender system that performs better than its own algorithm

with a prize of 1 million dollars to win. Recommendation systems have become ubiquitous in our lives. Yet, currently, they are far from optimal. A recommendation system is a type of information filtering system which attempts to predict the preferences of a user, and make suggests based on these preferences. There are a wide variety of applications for recommendation systems. These have become increasingly popular over the last few years and are now utilized in most online platforms that we use. The content of such platforms varies from movies, music, books and videos, to friends and stories on social media platforms, to products on e-commerce websites, to people on professional and dating websites, to search results returned on Google. Often, these systems are able to collect information about a user's choices, and can use this information to improve their suggestions in the future. For example, Facebook can monitor your interaction with various stories on your feed in order to learn what types of stories appeal to you. Sometimes, the recommender systems can make improvements based on the activities of a large number of people. For example, if Amazon observes that a large number of customers who buy the latest Apple Mac book also buy a USB-C-to USB Adapter, they can recommend the Adapter to a new user who has just added a Mac book to his cart.

LITERATURE REVIEW

However, the growth of Web 2.0 that facilitates ease of access to the vast amount of data at anytime, anywhere resulted in a new issue called, information overload which makes finding appropriate information tedious. As a result, users are facing difficulty of understanding an issue and effectively making decisions when one has too much information about that issue. In order to overcome with aforementioned challenge and assist users to select suitable option among many possibilities, online recommender systems have come to existence to provide a technological proxy (Chen, 2011), to determine if a user would like a specific item via making prediction, or recommending top items to the user based on her preferences and analyzing the user behavior.

EXISTING SYSTEM

The existing engines make use of conventional algorithms for recommendations. In Content based Recommendation Engine, system generates recommendations from source based on the features associated with products and the user's information. Content-based

recommenders treat recommendation as a user-specific classification problem and learn a classifier for the user's likes and dislikes based on product features. In Collaborative recommendation engines, suggestions are generated on the basis of ratings given by group of people. It locates peer users with a rating history similar to the current user and generates recommendations for the user. In Context based Recommendation Engine, system requires the additional data about the context of item consumption like time, mood and behavioral aspects. These data may be used to improve the recommendation compared to what could be performed without this additional source of information.

Disadvantages: The major problem with existing system is it needs a good amount of data to even work considerably good which can be a challenge for small businesses and startups. The data which is to be used for training should be precise and filtered. Any mistake in the data can lead to inaccuracy of the whole system.

PROPOSED SYSTEM: The Proposed Video Recommender System will use Content based filtering technique using cosine similarity algorithm. This methodology depends on making a plenty of parameters to describe a particular video or clip file. Thinking about an Video as an model the potential parameters could be Channel, Genre, Year Released etc. The bigger the parameter set the better and simpler it is to coordinate examples with customer's interest and his online impression. The parameters would then be assigned weight and consequently a relative need is set for every one of the parameter. All these parameters are then used to make a customer's profile. Henceforth we see that the system finds out about the client interest and choice patters by his interest by understanding online behavior.

Advantages: The major advantage of using Content based filtering algorithm is no requirement of huge dataset. Using this kind of system, a video streaming can increase the content consumption per customer. The Content Based filtering algorithm is flexible in nature.

SYSTEM REQUIREMENT AND ANALYSIS

A Recommendation System, can be described to as a system that can run on grouped/non grouped environment by taking customer's online history and usage behavior as one of its input and producing a likely result for the client along these lines giving its customers an expectation closer to the real world. Recommender system

generally requires a huge dataset and a quick registering framework that can perform examination on the equivalent within seconds. Recommendation Systems, in easier terms are software's that are information escalated and include complex example running on a lot of predefined parameters. Recommender system customer's interest with the end goal of suggesting things to buy or look at. They have become basic applications in media streaming business also, giving proposals that needs huge data sets with the goal that clients are directed toward the content which are most liked by them and matches their interest. Many of systems have been proposed till today for performing proposals and recommendations. The systems for example, content-based, communitarian, information based and statistic are utilized for proposals. In the proposed Video Recommendation System, Videos will be suggested and shown by using content based filtering technique, which can work even in a smaller amount of data. For building a recommender system from scratch, we face several different problems. Currently there are a lot of recommender systems based on the user information, so what should we do if the website has not gotten enough users. After that, we will solve the representation of a movie, which is how a system can understand a movie. That is the precondition for comparing similarity between two movies. Movie features such as genre, actor and director is a way that can categorize movies. But for each feature of the movie, there should be different weight for them and each of them plays a different role for recommendation.

SOFTWARE AND HARDWARE REQUIREMENTS

REQUIREMENT SPECIFICATION

Software Requirements:

Operating System : windows 7

Ultimate Coding Language : Python

Editor :Jupyter Notebook

Server : Anaconda Server (Dashboard)

Command Prompt : Anaconda Prompt

Hardware Requirements:

Preprocessor : i3(minimum), i5

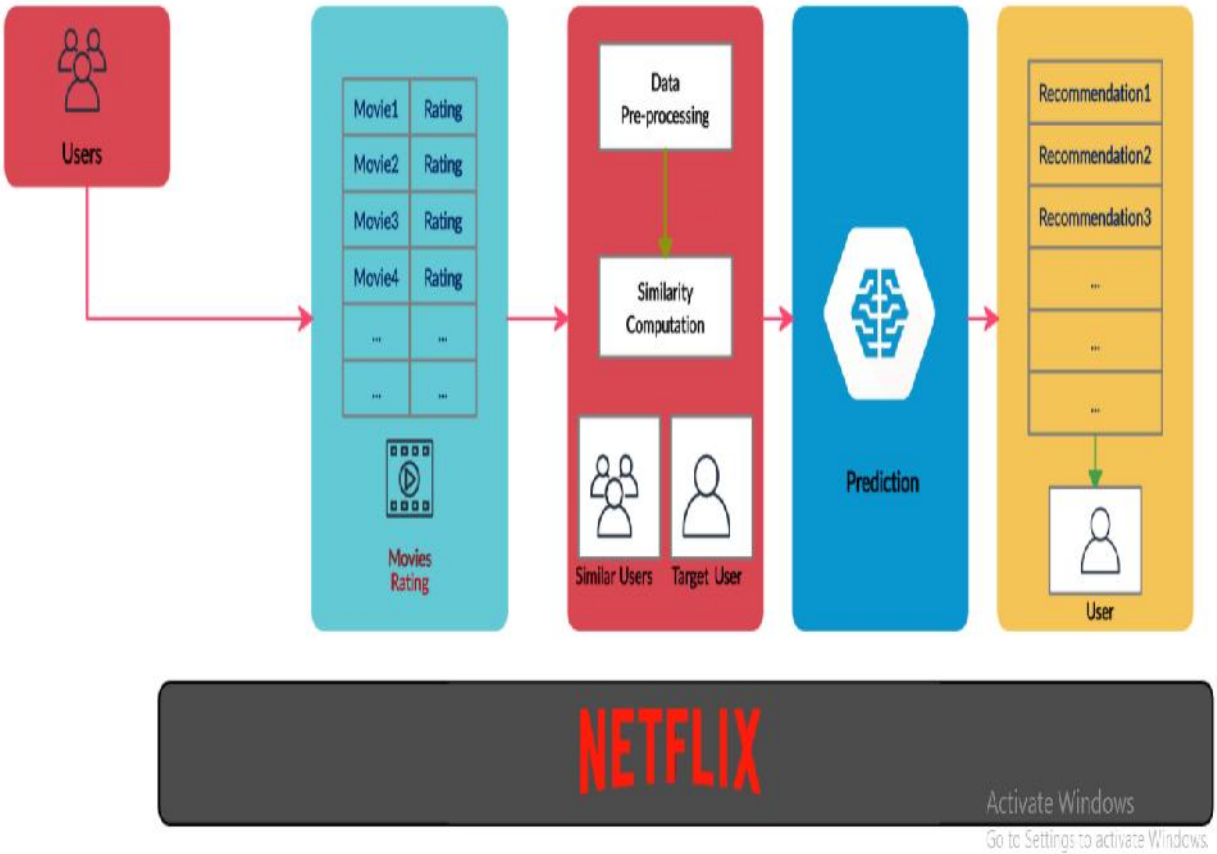
RAM : 4GB (minimum)

Mouse : Optical Mouse

Monitor : 15.6' colour Monitor

Hard disk : 1TB

ARCHITECTURE



TESTING

Evaluation metrics for recommendation algorithms the quality of a recommendation algorithm can be evaluated using different types of measurement which can be accuracy or coverage. The type of metrics used depends on the type of filtering technique. Accuracy is the fraction of correct recommendations out of total possible recommendations while coverage measures the fraction of objects in the search space the system is able to provide recommendations for. Metrics for measuring the accuracy of recommendation filtering systems are divided into statistical and decision support accuracy metrics. The suitability of each metric depends on the features of the dataset and the type of tasks that the recommender system will do.

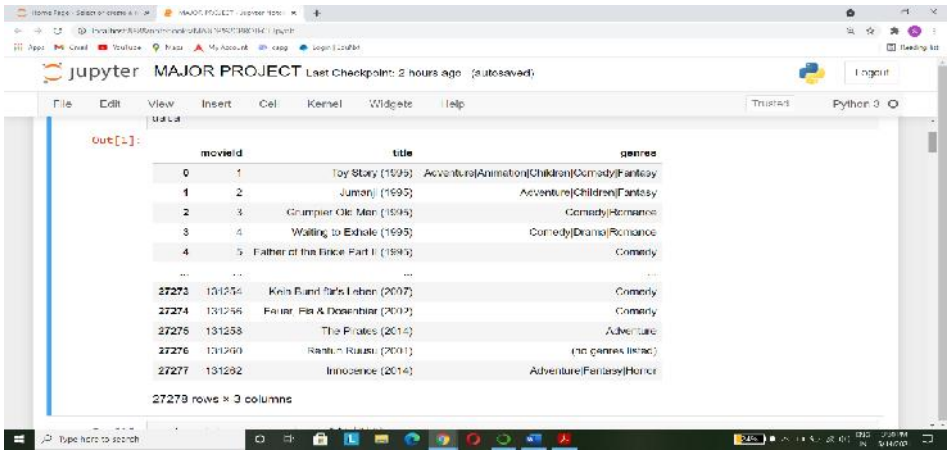


Fig.1: Output for displaying the dataset

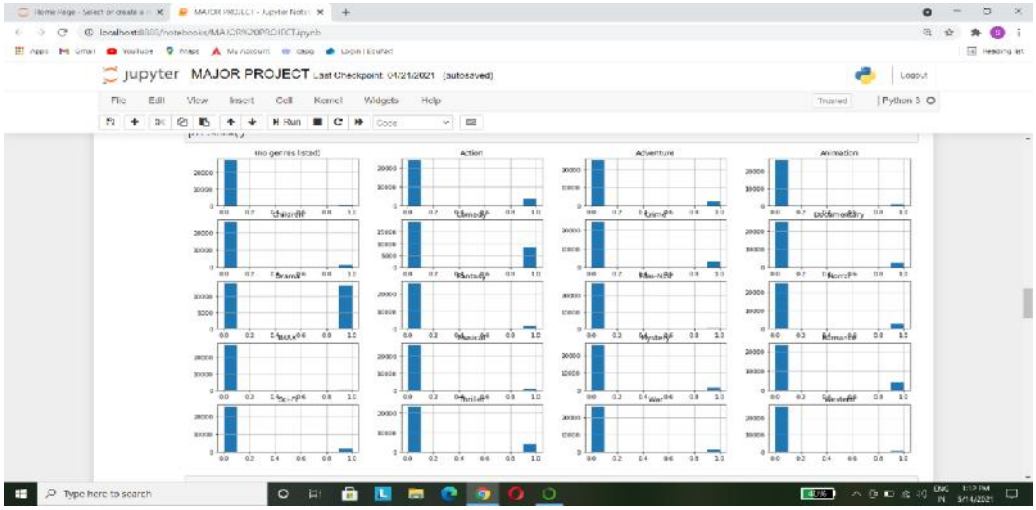


Fig.2: Output for displaying graph on genre

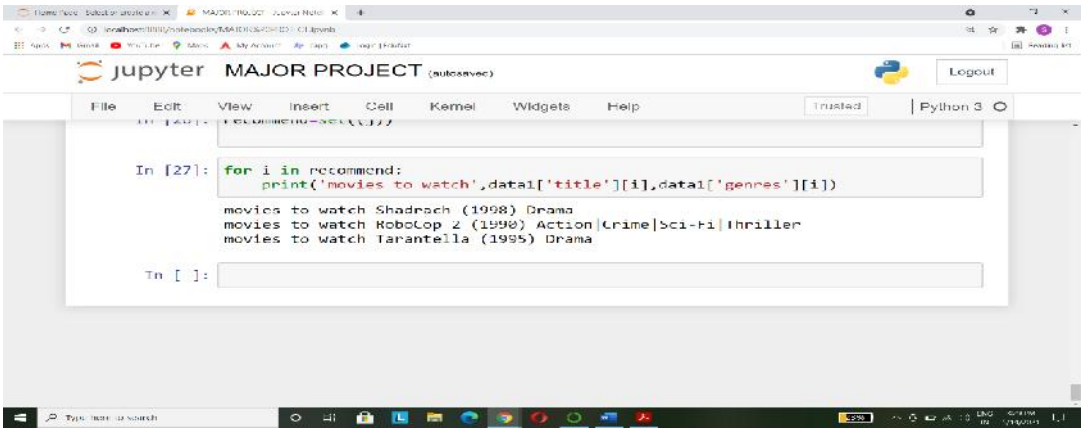


Fig.3:Output of movie recommendation titles

CONCLUSION

Recommender systems are a powerful new technology for extracting additional value for a business from its user databases. These systems help users find items they want to buy from a business. Recommender systems benefit users by enabling them to find items they like. Conversely, they help the business by generating more sales. Recommender systems are rapidly becoming a crucial tool in E-commerce on the Web. Recommender systems are being stressed by the huge volume of user data in existing corporate databases, and will be stressed even more by the increasing volume of user data available on the Web. New technologies are needed that can dramatically improve the scalability of recommender systems. Recommender systems open new opportunities of retrieving personalized information on the Internet. It also helps to alleviate the problem of information overload which is a very common phenomenon with information retrieval systems and enables users to have access to products and services which are not readily available to users on the system.

FUTURE ENHANCEMENT

Cosine similarity calculation do not work well when we don't have enough rating for movie or when user's rating for some movie is exceptionally either high or low.As an improvement on this project some other methods such as adjusted cosine similarity can be used to compute similarity. Adjusted cosine similarity, which is similar to cosine similarity, is measured by normalizing the user vectors Ux and Uy and computing the cosine of the angle between them. However, unlike cosine similarity, when computing the dot product of the two user vectors, adjusted cosine similarity uses the deviation between each of the user's item ratings, denoted Ru, and their average item rating, denoted ¯Ru, in place of the user's raw item rating. In the near future, it will be installed in Apache Server and so it will be published in internet. Datasets will be updated continuously and it will make online actual rating predictions to the users whose habits are changing day by day. As a result, it can be sensitively satisfying current user tastes.

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