A Mini Project Report on

MOVIE RECOMMENDATION SYSTEM

T.E. - I.T Engineering

Submitted By

Suyash Jadhav   **20104107**

Pratham Lotankar   **20104025**

Kaushal Nikam   **20104117**

Ashish Mundhada   **20104107**

Under The Guidance Of
Prof. Sonal Balpande

DEPARTMENT OF INFORMATION TECHNOLOGY

A.P.SHAH INSTITUTE OF TECHNOLOGY

G,B. Road, Kasarvadavali, Thane (W),Mumbai-400615

UNIVERSITY OF MUMBAI

Academic year: 2022-23

CERTIFICATE

This to certify that the Mini Project report on Movie Recommendation System has been submitted by **Suyash Jadhav(20104036), Pratham Lotankar (20104025), Kaushal Nikam (20104117) and Ashish Mundhada (20104107)** who are a Bonafede students of A. P. Shah Institute of Technology, Thane, Mumbai, as a partial fulfilment of the requirement for the degree in **Information Technology**, during the academic year **2022-2023** in the satisfactory manner as per the curriculum laid down by University of Mumbai.

Prof. Sonal Balpande
   Guide

 Dr. Kiran Deshpande   **Dr. Uttam D. Kolekar**
 HOD, Information Technology   **Principal**

External Examiner(s)

1.

2.

Place: A.P. Shah Institute of Technology, Thane

Date:

ACKNOWLEDGEMENT

ABSTRACT

Recommendation System is a major area which is very popular and useful for people to take proper automated decisions. It is a method that helps user to find out the information which is beneficial to him/her from variety of data available. When it comes to Movie Recommendation System, recommendation is done based on similarity between users (Collaborative Filtering) or by considering particular user's activity (Content Based Filtering) which he wants to engage with. To overcome the limitations of collaborative and content based filtering generally,combination of collaborative and content based filtering is used so that a better recommendation system can be developed. Also various similarity measures are used to find out similarity between users for recommendation. In this paper, we have surveyed state-of-the-art methods of Content Based Filtering, Collaborative Filtering, Hybrid Approach and Deep Learning Based Methods for movie recommendation. We have also reviewed different similarity measures. Various companies like facebook which recommends friends, LinkedIn which recommends job, Pandora recommends music, Netflix recommends movies, Amazon recommends products etc. use recommendation system to increase their profit and also benefit their customers. This paper mainly concentrates on the brief review of the different techniques and its methods for movie recommendation, so that research in recommendation system can be explored.

TABLE OF CONTENTS

CHAPTER 1

INTRODUCTION

A recommendation system or recommendation engine is a model used for information filtering where it tries to predict the preferences of a user and provide suggests based on these preferences. These systems have become increasingly popular nowadays and are widely used today in areas such as movies, music, books, videos, clothing, restaurants, food, places and other utilities. These systems collect information about a user's preferences and behaviour, and then use this information to improve their suggestions in the future. Movies are a part and parcel of life. There are different types of movies like some for entertainment, some for educational purposes, some are animated movies for children, and some are horror movies or action films. Movies can be easily differentiated through their genres like comedy, thriller,animation, action etc. Other way to distinguish among movies can be either by releasing year, language, director etc. Watching movies online, there are a number of movies to search in our most liked 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 favourable 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. A large number of companies are making use of recommendation systems to increase user interaction and enrich a user's shopping experience. Recommendation systems have several benefits, the most important being customer satisfaction and revenue. Movie Recommendation system is very powerful and important system. But, due to the problems associated with pure collaborative approach, movie recommendation systems also suffers with poor recommendation quality and scalability issues.

A movie recommendation system is an algorithmic approach that suggests movies to users based on their past viewing history, ratings, and preferences. The goal of such a system is to provide users with personalized recommendations that they are likely to enjoy, thereby improving their overall movie watching experience.

There are various approaches to building a movie recommendation system, including content-based filtering, collaborative filtering, and hybrid approaches. Content-based filtering suggests movies to users based on their similarity to previously watched movies in terms of genres, actors, directors, and other features. Collaborative filtering, on the other hand, suggests movies based on the viewing history and ratings of similar users. Hybrid approaches combine both content-based and collaborative filtering techniques to provide more accurate and diverse recommendations.

Overall, movie recommendation systems play a crucial role in the entertainment industry, as they help users discover new movies and improve their overall movie watching experience

Problem Identified:

- The major problem faced by individual was they generally used to go to bank or any type of finance company to get the eligibility or knowledge about the loans.

- Loan prediction is a very common real-life problem that every finance company faces in their lending operations.

Solution Proposed:

- By using our Loan Prediction System user will get and proper idea about his/her loan eligibility status and information about the loans within few clicks.

- If the loan approval process is automated, it can save a lot of man hours and improve the accuracy and speed of service to the customers.

1.1 Purpose:

The primary purpose of a movie recommendation system is to provide personalized recommendations to users based on their preferences and past viewing history. The system aims to suggest movies that users are likely to enjoy, thereby improving their overall movie watching experience and increasing their engagement with the platform. Moreover, movie recommendation systems can also help users discover new movies genres that they might not have otherwise considered. By analyzing the user's viewing history and ratings, the system can suggest movies that the user may not have heard of or watched before. Finally, recommendation systems can also help movie review websites like IMDb and Rotten Tomatoes suggest movies to users based on their past ratings and reviews. This not only improves the user experience but also helps the website generate more traffic and revenue. Overall, the purpose of a movie recommendation is to provide personalized recommendations to users, improve their overall movie watching experience, and increase engagement with the platform.

1.2 Problem Statement:

- A movie recommendation system aims to provide personalized recommendations to users based on their viewing history, preferences, and behavior.
- The system should be able to suggest movies that the user is likely to enjoy and would like to watch next.
- The key challenge is to develop a system that is able to capture the diverse and complex tastes of users, and recommend movies that are relevant and interesting to them.
- The system should also take into account various factors such as the genre, actors, directors, and ratings of movies to make accurate and effective recommendations.
- Additionally, the system should be scalable and able to handle a large volume of data efficiently.
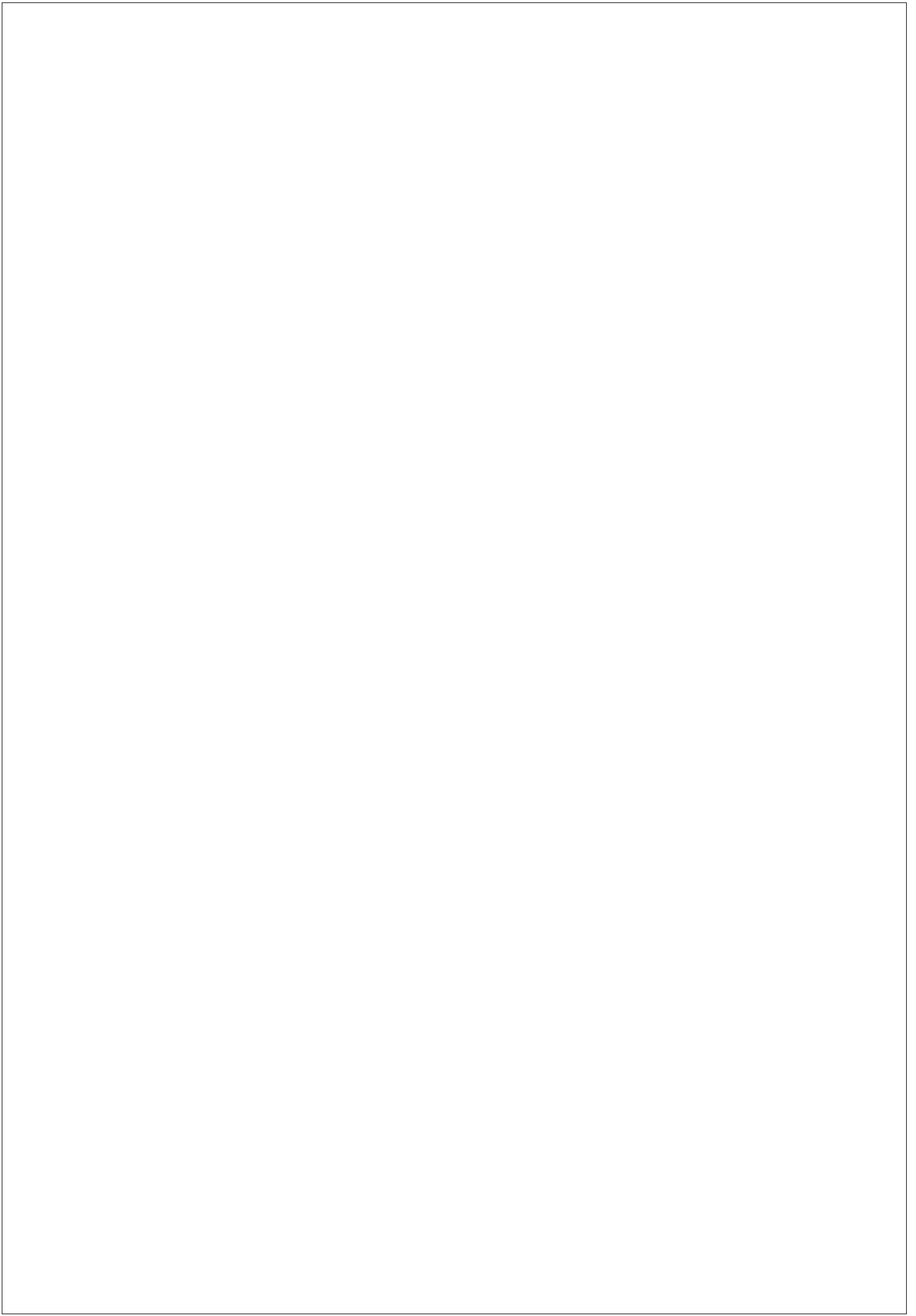
1.3 Objectives:

Some of the specific objectives of a movie recommendation system are:

- To increase user engagement and encourage users to watch more movies.
- To system can enhance the user experience and make it more enjoyable.
- To user retention and loyalty, leading to increased revenue for the platform.
- To generate more revenue for the platform through subscriptions, rentals, or purchases.
- To system can help users discover new content and expand their movie-watching experience.
- To discovery experience to users, leading to increased engagement, retention, and revenue for the platform.

1.4 Scope:

- The primary goal of movie recommendation systems is to filter and predict only those movies that a corresponding user is most likely to want to watch.

- The ML algorithms for these recommendation systems use the data about this user from the system's database. This data is used to predict the future behavior of the user concerned based on the information from the past.

- The target of our proposed system is to recommend appropriate movies to the users according to the ratings of the other users provided they are in same cluster.

CHAPTER 2

Literature Review

Sr.no	Title	Author(s)	Year	Algorithms	Limitations	Result
1	FARS: Fuzzv Ant based Recommender System for	K Fang et. al	1 January 2010	KNN		User, Web server log files, gave optimal solutions And qualified recommendations
2	A fuzzy recommended system for E-Elections	Luis Teran et. al	1 April 2011	KNN		Use recommended system for eGovernment to reduce information overload
3	An improved collaborative Movie Recommendation System using Computational Intelligence,	Zang Wang et. al	6 December 2014	KNN		Hybrid approach reduces computation complexity by date reduction technique Fuzzy weighting is fast ,effective and improves performance of CRC

CHAPTER 3

PROPOSED SYSTEM

3.1 Features and Functionality

1. User-friendly and easy to Use:
    *   Customer panel allows user to enter the personal details and predict the eligibility of the loan.
    *   Our loan prediction system is language independent.
2. Loans information section:
    *   Customer can get an basic information regarding different types of financial loans.
3. Simple interest rate calculator:
    *   Customer can calculate his/her simple interest rate by entering the values within few clicks.
4. Eligibility status:
    *   After entering all the detail information precisely system will analyse the data and reflect the eligibility status of the applicant.
5. Review section:
    *   Customer can share their experience/opinion of prediction in the review section.

CHAPTER 4

**REQUIREMENT ANALYSIS**

Importance of Requirement Analysis :

Requirements gathering is a fundamental part of any business decision. It helps generate a list of system, functional and technical requirements from the different stakeholders involved in the process. Being confident about what requirements to look for ensures your expectations with the deliverables are clear, and that eventually enables you to make the right choice when it comes to selecting a Gift Shopping solution for your business. No one knows your business better than us. So, it's important to figure out your expectations from the platform before you start looking for one the requirements. Once we know what we want the software to do for our project, so it becomes way easier to pick solutions.

CHAPTER 5

PROJECT DESIGN:

In this phase, a logical system is built which fulfils the given requirements. Design phase of software development deals with transforming the client's requirements into a logically working system. Normally, design is performed in the following in the following two steps: Primary Design Phase: In this phase, the system is designed at block level. The blocks are created on the basis of analysis done in the problem identification phase. Different blocks are created for different functions emphasis is put on minimizing the information flow between blocks. Thus, all activities whichrequire more interaction are kept in one block. Secondary Design Phase: In the secondary phase the detailed designof every block is performed. The general tasks involved in the design process are the following: 1. Design various blocks for overall system processes. 2. Design smaller, compact and workable modules in each block. 3. Design various database structures. 4. Specify details of programs to achieve desired functionality. 5. Design the form of inputs, and outputs of the system. 6. Perform documentation of the design. 7. System reviews.

5.1 Algorithm Working with flowchart:
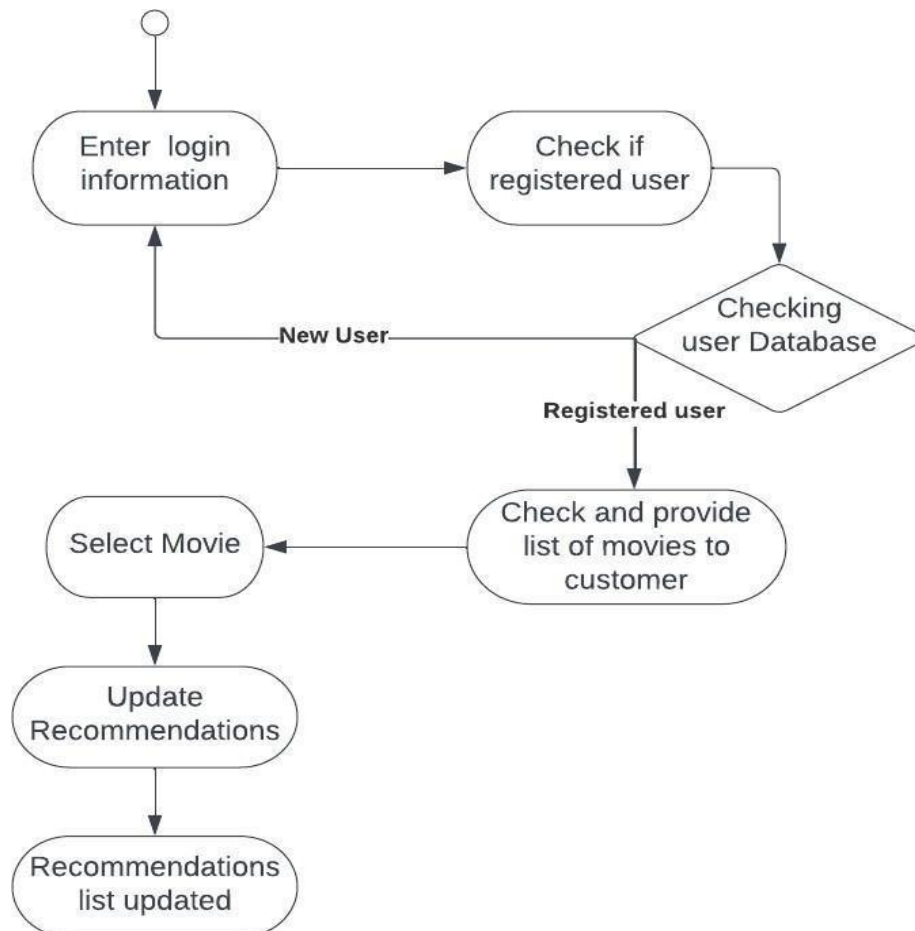
5.2 Data Flow Diagram:
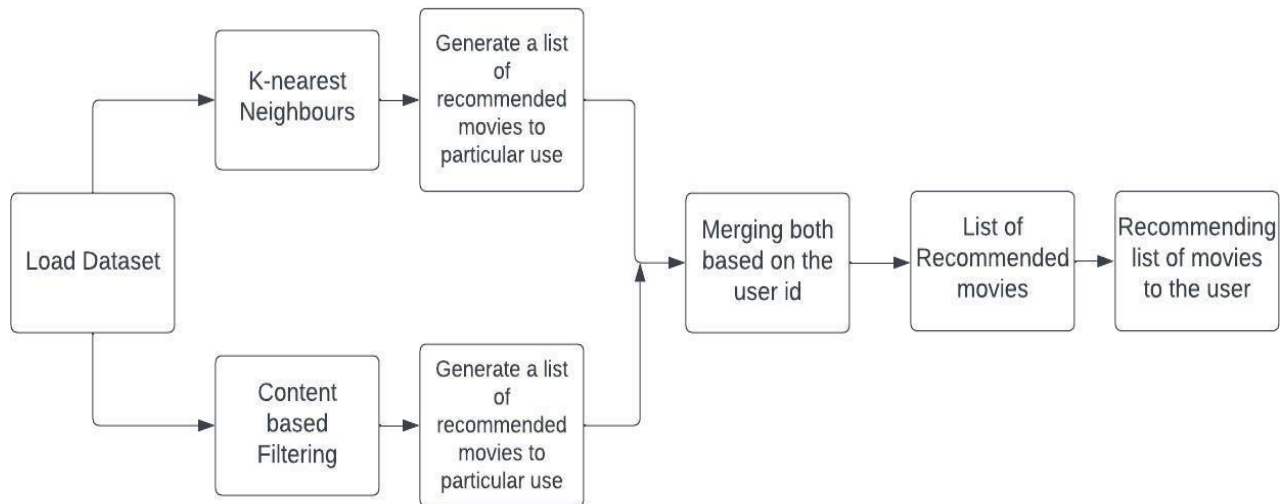
5.3 System Architecture:

The system architecture gives an overview of the working of the system. The working of the system starts with the collection of data from the database and here we divide the data into training data and testing data, selecting the attributes. And then pre-processing the required data is done so that it removes duplicate data and the error data. Firstly, user have to login and then write the personality test there are 50 questions each trait consists of 10 questions, user must answer those 50 questions, based up on the answers the algorithms are applied, and the model is trained using the training data . Here we are big five personality traits and then classify the personality type. Accuracy is measured by testing the system using testing data. So, after that Personality is predicted.

CHAPTER 6

TECHNICAL SPECIFICATION

Development Environment: VS Code

Visual Studio (VS) Code is an open-source code editor primarily used to correct and repair cloud and web applications coding errors. VS Code is developed by Microsoft and supports the macOS, Linux, and Windows operating systems. VS Code's tools can be used to enhance the functionality of any written code. Based on the Electron framework, VS Code employs the same editor component used in Azure DevOps. By incorporating multiple FTP extensions, Users can sync code between the server and the editor without having to download extra software

Frontend: Python

Python is a computer programming language often used to build websites and software, automate tasks, and conduct data analysis. Python is a general-purpose language, meaning it can be used to variety of different programs and isn't specialized for any specific problems.

Operating System (OS): Windows

Windows is a graphical operating system developed by Microsoft. It allows users to view and store files, run the software, play games, watch videos, and provides a way to connect to the internet. It was released for both home computing and professional works.

CHAPTER 7

PROJECT SCHEDULING

Sr.no	Group Members	Time Duration	Work to be done
1	**Suyash Jadhav**	1st week of July	Implementing 1st module/ functionality
2	**Pratham Lotankar**	2nd week of July	Testing 1st module
3	**Kaushal Nikam**	3rd week of August	Implementing 2nd module/functionality
4	**Ashish Mundhada**	1st week of September	Implementing 3rd module/ functionality

CHAPTER 8

IMPLEMENTATION
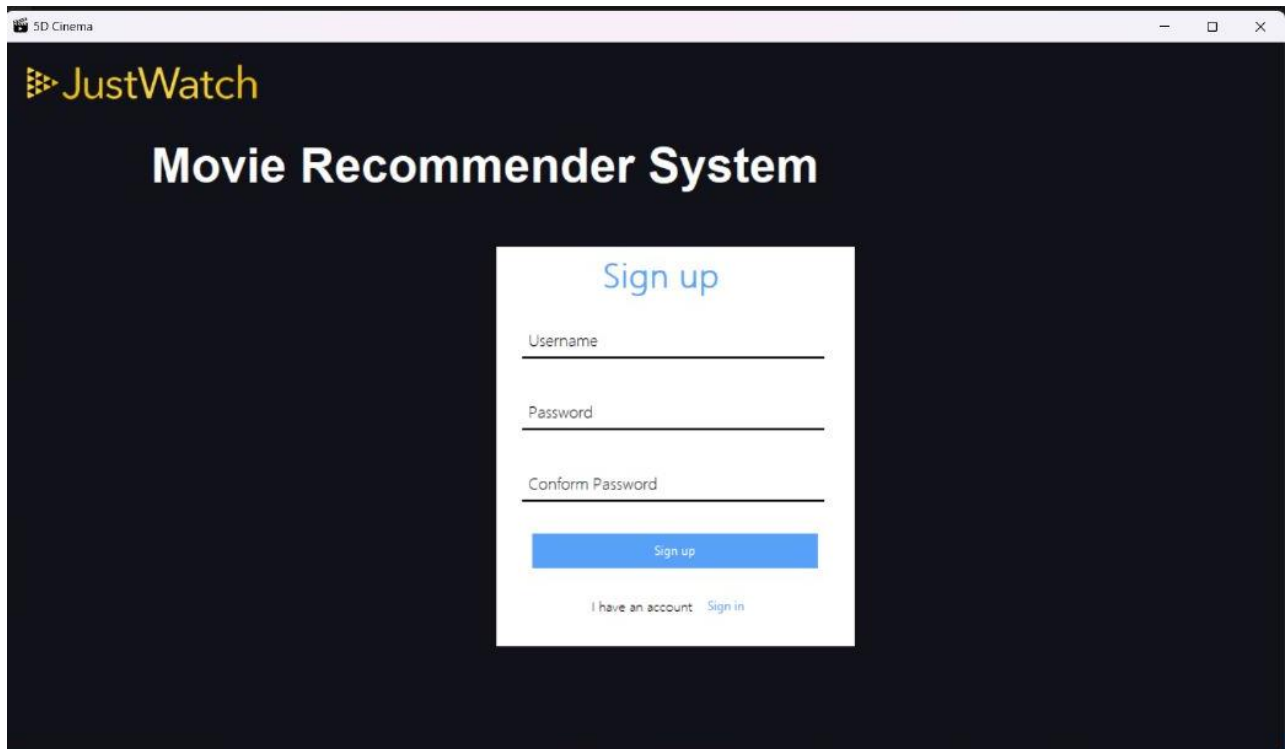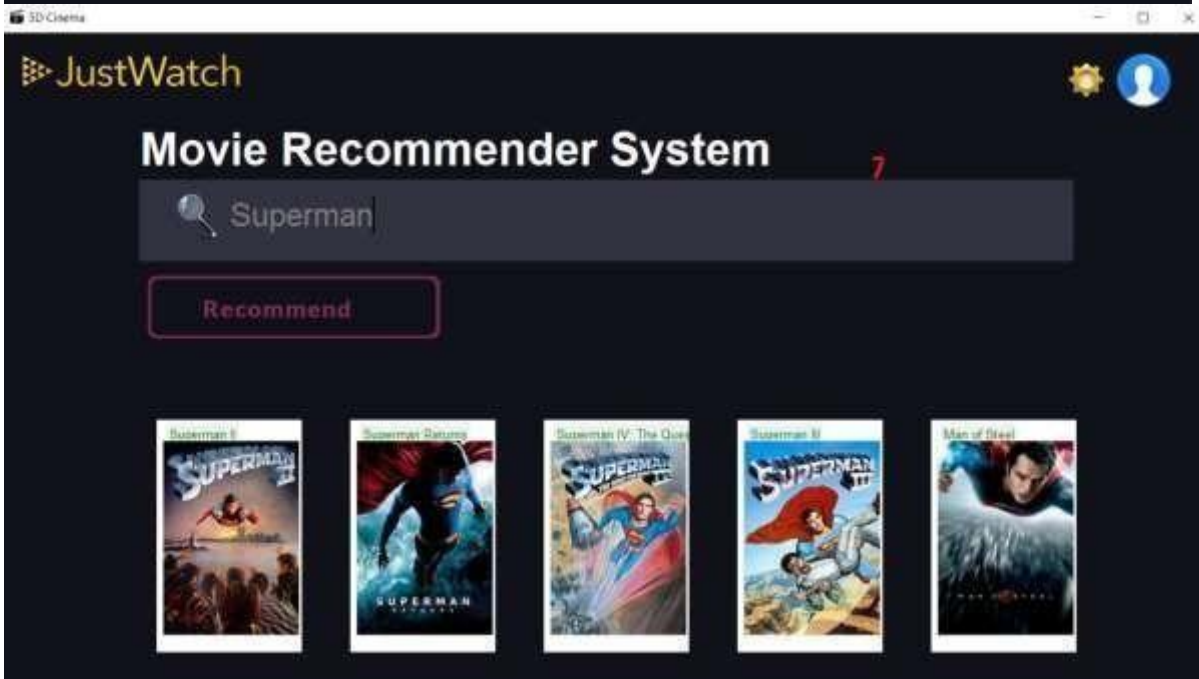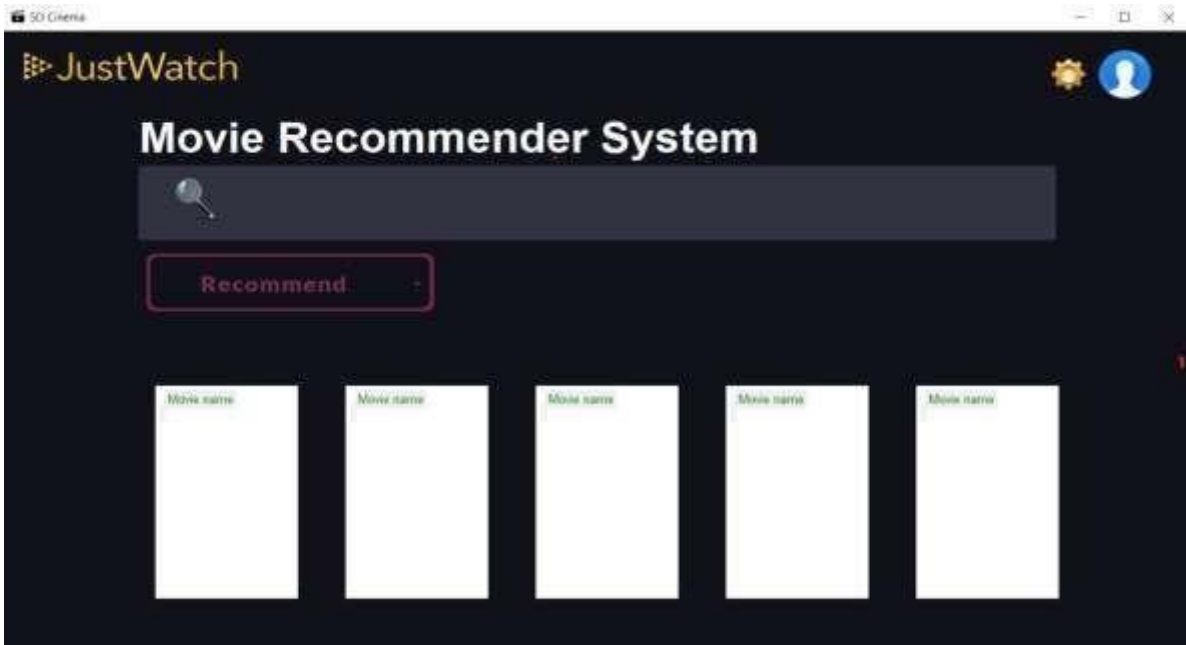
CHAPTER 9

RESULT AND DISCUSSION

Recommender system has become more and more important because of the information overload. For content- based recommender system specifically, we attempt to find a new way to improve the accuracy of the representative of the movie. For the problems we mentioned at beginning, firstly, we use content-based recommender algorithm which means there is no cold start problem. In Section 4.1, we list all the features inourrecommender system. Some of them are from other research team in the company, so the features are diversity and more accurate than others. Then we introduced the cosine similarity which is commonly usedin industry. For the weight of features, we introduced TF-IIDF-DC which improve the representative of the movie. This master thesis introduces a content-based recommender system for the movie website of VionLabs. The features used in the system are extracted from various aspects of the movie, which are diversity and unique. We introducea new approach for setting weight for these features, the movie can be represented more accurately by TF-IIDF- DC which is the key point of our research. In the end of the project,we use k-NN and various metrics to evaluatethe improvement of the new approach. It is illustrated that the new approach contributes positively according tothe evaluation.

CHAPTER 10

CONCLUSION AND FUTURE SCOPE

Conclusion:

- Existing pure approaches and proposed hybrid approach is implemented on three different Movie datasets and the results are compared among them. In this project, to improve the accuracy, quality and scalability of movie recommendation system, a Hybrid approach by unifying content based filtering and collaborative filtering; using Singular Value Decomposition (SVD) as a classifier and Cosine Similarity is presented in theproposed methodology.

- Comparative results depicts that the proposed approach shows an improvement in the accuracy, quality and scalability of the movie recommendation system than the pure approaches.

- Also, computing time of the proposed approach is lesser than the other two pure approaches.

Future scope:

- In the proposed approach, It has considered Genres of movies but, in future we can also consider age of user as according to the age movie preferences also changes, like for example, during our childhoodwe like animated movies more as compared to other movies.

- There is a need to work on the memory requirements of the proposed approach in the future. The proposed approach has been implemented here on different movie datasets only.

- It can also be implemented on the Film Affinity and Netflix datasets and the performance can be computed in the future.

REFERENCES

[1] Hirdesh Shivhare, Anshul Gupta and Shalki Sharma (2015), "Recommender system using fuzzy c-means clustering and genetic algorithm based weighted similarity measure", IEEE International Conference on Computer, Communication and Control.

[2] Manoj Kumar, D.K. Yadav, Ankur Singh and Vijay Kr. Gupta (2015), "A Movie Recommender System: MOVREC", International Journal of Computer Applications (0975 – 8887) Volume 124 – No.3.