Social and Information Networks

Project Report

Movie recommender system

Pillai Abhishek Rajesh (16BCE1187)
Mudit Sameer Bhartia (16BCE1100)

Vellore Institute of Technology, Chennai, India
abhishek.rajesh2016@vitstudent.ac.in
muditsameer.bhartia2016@vitstudent.ac.in

Abstract

Our project is a movie recommender system that clusters users based on the PCS (Pearson Correlation Similarity) measure to solve for the closest in likings users to estimate ratings given to movies by a user which is a Collaborative Filtering Methodology. The Engine then uses K-Means clustering to cluster movies of similar genre into groups for boosting the performance and accuracy of predictions. Also, we have made a basic terminal app which asks the user to rate certain movies and the recommends genre based on ratings as well as show to closest users thus predicting age, sex etc.

Literature Review

Journal Paper 1: Recommender System designed on PHP and Apache Server

International Journal of Computer Applications (0975 – 8887) Volume 124 – No.3, August 2015 7 A

Movie Recommender System: MOVREC

Manoj Kumar Assistant Professor Department of Information and Technology BBDNITM Lucknow
D.K. Yadav Associate Professor Department of Computer Science MNNIT Allahabad Allahabad
Ankur Singh MTech (P) Software Engineering BBDU Lucknow India
Vijay Kr. Gupta Assistant Professor Department of Computer Science BBDNITM Lucknow

Abstract

Now a day's recommendation system has changed the style of searching the things of our interest. This is information filtering approach that is used to predict the preference of that user. The most popular areas where recommender system is applied are books, news, articles, music, videos, movies etc. In this paper we have proposed a movie recommendation system named MOVREC. It is based on collaborative filtering approach that makes use of the information provided by users, analyses them and then recommends the movies that is best suited to the user at that time. The recommended movie list is sorted according to the ratings given to these movies by previous users and it uses K-means algorithm for this purpose. MOVREC also help users to find the movies of their choices based on the movie experience of other users in efficient and effective manner without wasting much time in useless browsing. This system has been developed in PHP using Dreamweaver 6.0 and Apache Server 2.0. The presented recommender system generates recommendations using various types of knowledge and data about users, the available items, and previous transactions stored in customized databases. The user can then browse the recommendations easily and find a movie of their choice

So, they have made a recommender using k-means clustering algorithm and have designed the front-end using PHP and Apache Server 2.0.

Journal Paper 2: Recommender System using JAVA ML and MySQL

Abstract

Gaurav Arora1
Ashish Kumar2
Gitanjali Sanjay Devre3
Prof. Amit Ghumare4
1,2,3 Student, Computer Engineering Department
4Assistant Professor, Computer Engineering Department
1,2,3,4Dr. D. Y. Patil College of Engineering, Ambi University of Pune
1 K243.gsa@gmail.com,
2 ashishkumar00071@gmail.com,
3 geetpatil2@gmail.com,
4 amit.ghumare@gmail.com

Abstract

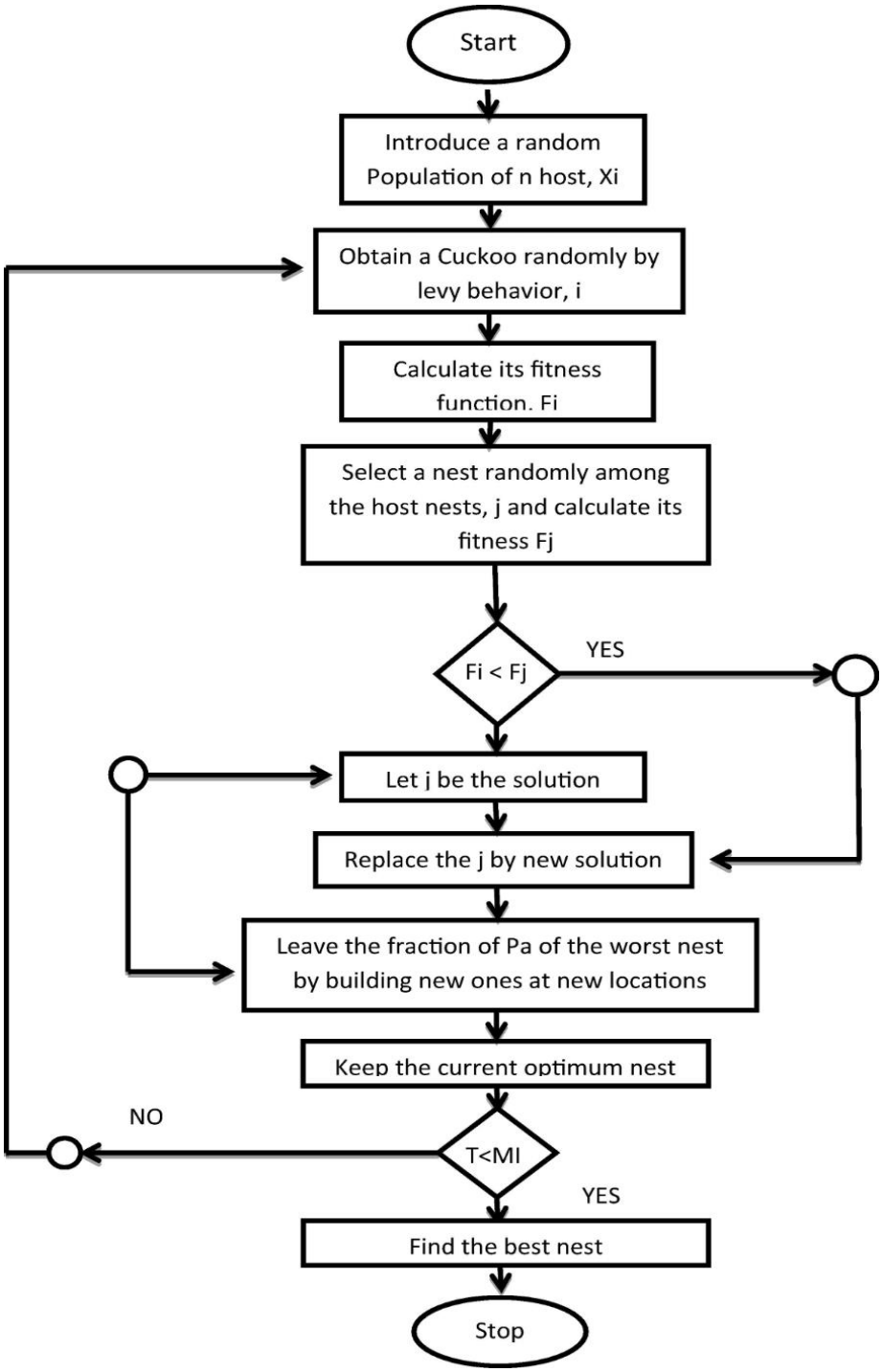
The growth of e-Commerce has given the birth to recommendation engine. There are many recommendation engines existing in the market to recommend different stuffs to the users. These recommendations are based on different aspects such as interest of users, history of users, location of users and many more. In all the above aspects, one thing is common and that is individuality. The engine recommends users on the basis of users' perspective; but there are things in market which are worth concerned and that a user is unaware of. These things must also recommend to the users by the engine; but due to the limitation of" individuality", these engines do not recommend things that are out of the box. The hybrid movie recommendation engine has overcome this limitation of individuality. The engine will recommend movies to the users as per their interest as well as it will recommend movies rated by other users who are similar to the user. In addition to that, there are web services which will act as an adornment to the application.

They have created a recommender system based on Euclidean distance similarity-based clustering

Journal Paper 3: Recommender system with k-means clustering and cuckoo search

Abstract

Recommender systems are information filtering tools that aspire to predict the rating for users and items, predominantly from big data to recommend their likes. Movie recommendation systems provide a mechanism to assist users in classifying users with similar interests. This makes recommender systems essentially a central part of websites and e-commerce applications. This article focuses on the movie recommendation systems whose primary objective is to suggest a recommender system through data clustering and computational intelligence. In this research article, a novel recommender system has been discussed which makes use of k-means clustering by adopting cuckoo search optimization algorithm applied on the MovieLens dataset. Our approach has been explained systematically, and the subsequent results have been discussed. It is also compared with existing approaches, and the results have been analysed and interpreted. Evaluation metrics such as mean absolute error (MAE), standard deviation (SD), root mean square error (RMSE) and t-value for the movie recommender system delivers better results as our approach offers lesser value of the mean absolute error, standard deviation, and root mean square error. The experiment results obtained on MovieLens dataset stipulate that the proposed approach may provide high performance regarding reliability, efficiency and delivers accurate personalized movie recommendations when compared with existing methods. Our proposed system (K-mean Cuckoo) has 0.68 MAE, which is superior to existing work (0.78 MAE) and also has improvement of our previous work (0.75 MAE).



Cuckoo search flowchart

Journal Paper 4: A Review Paper on Machine Learning Based Recommendation System

Abstract

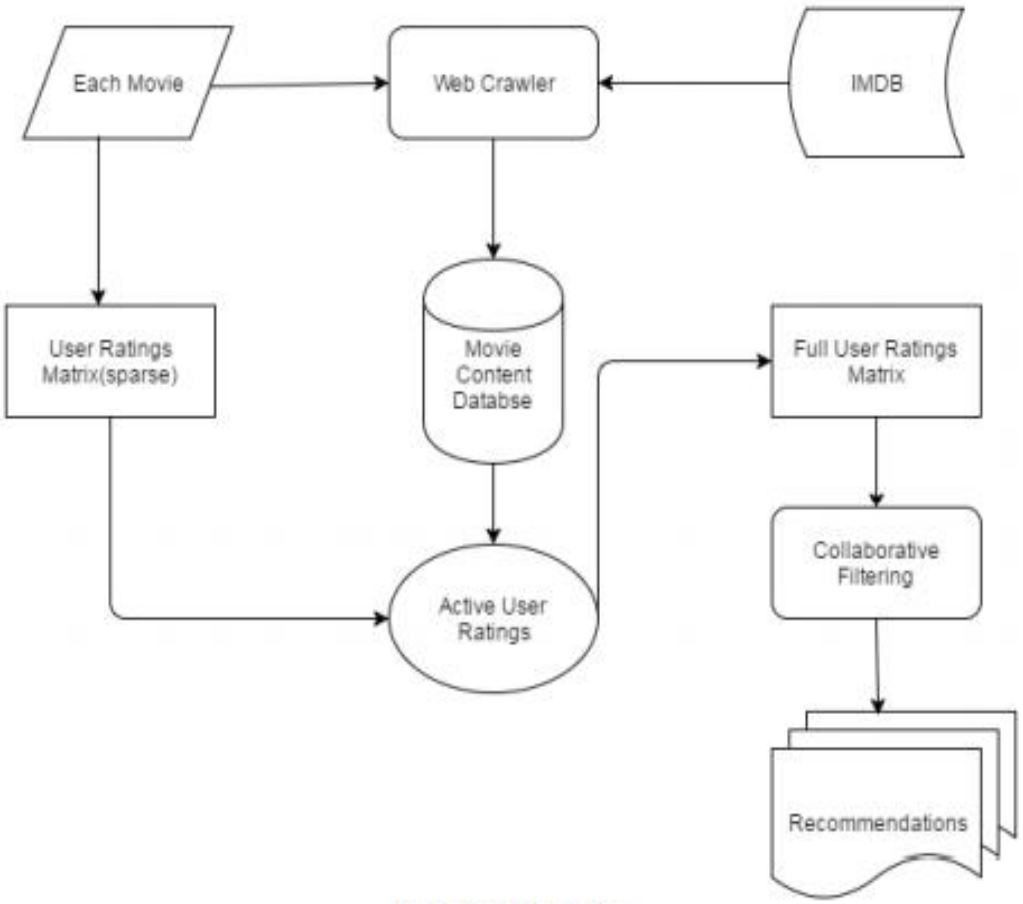
Recommendation system plays important role in Internet world and used in many applications. It has created the collection of many application, created global village and growth for numerous information. This paper represents the overview of Approaches and techniques generated in recommendation system. Recommendation system is categorized in three classes: Collaborative Filtering, Content based and hybrid-based Approach. This paper classifies collaborative filtering in two types: Memory based and Model based Recommendation. The paper elaborates these approaches and their techniques with their limitations. This survey shows the road map for research in this area.

This research paper lists out all of the algorithms that can be used, combined together to form hybrid clustering, classification, recommender systems and is very useful for a quick reference.

Journal Paper 5: MOVIEMENDER- A hybrid movie recommender system

Abstract

In today's digital world where there is an endless variety of content to be consumed like books, videos, articles, movies, etc., finding the content of one's liking has become an irksome task. On the other hand, digital content providers want to engage as many users on their service as possible for the maximum time. This is where recommender system comes into picture where the content providers recommend users the content according to the users' liking. In this paper we have proposed a movie recommender system Movie Mender. The objective of Movie Mender is to provide accurate movie recommendations to users. Usually the basic recommender systems consider one of the following factors for generating recommendations; the preference of user (i.e. content-based filtering) or the preference of similar users (i.e. collaborative filtering). To build a stable and accurate recommender system a hybrid of content-based filtering as well as collaborative filtering will be used.



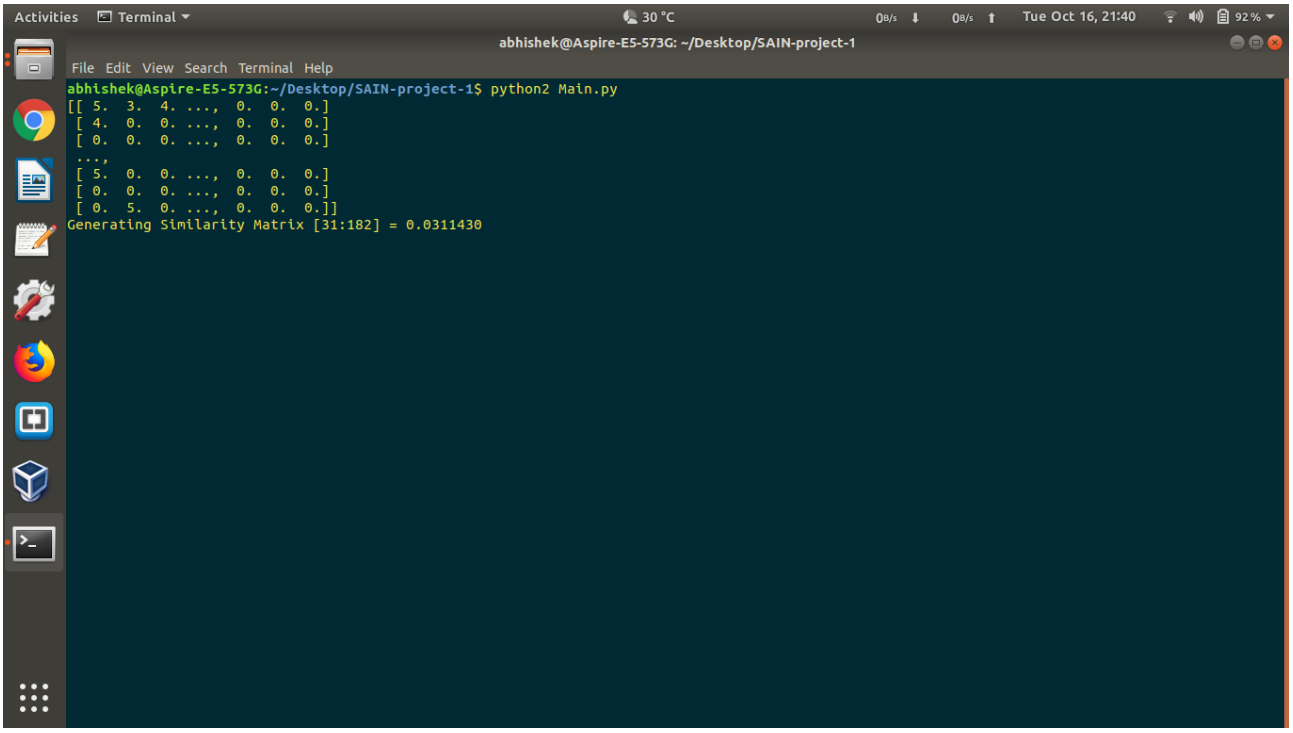
System Overview

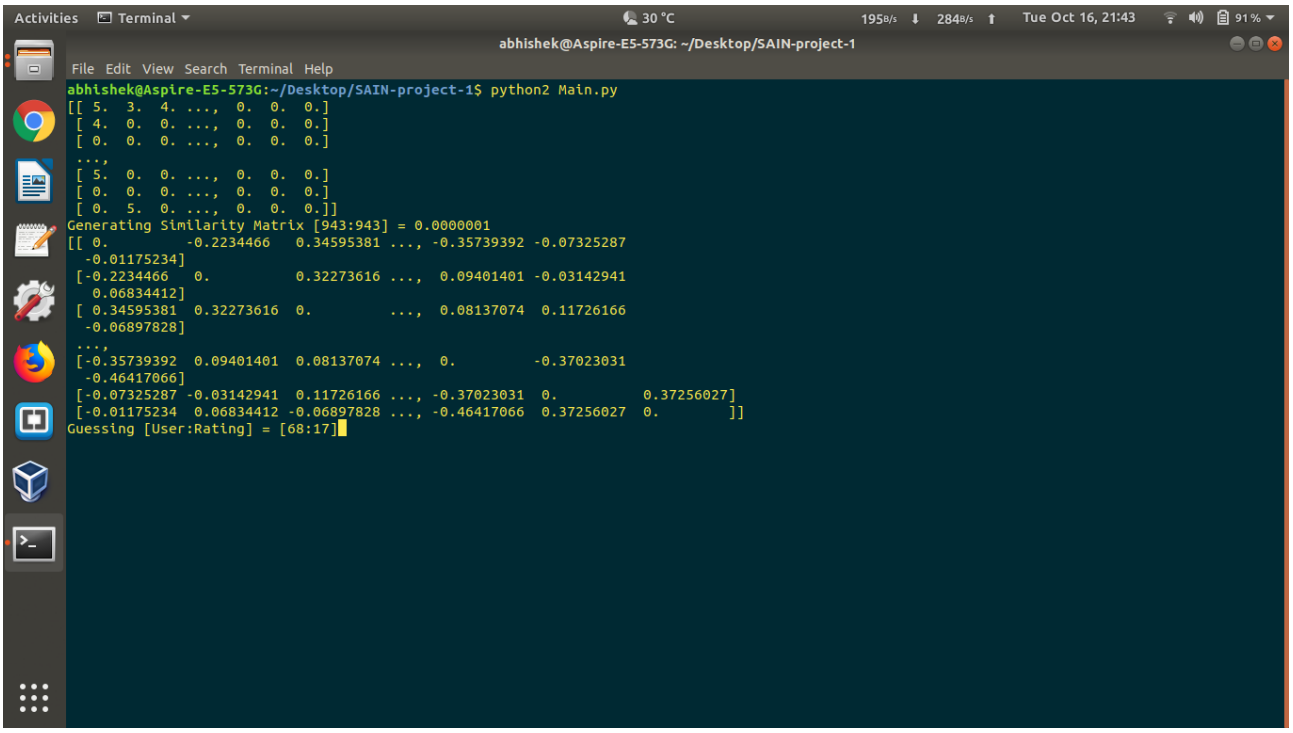
Proposed Work

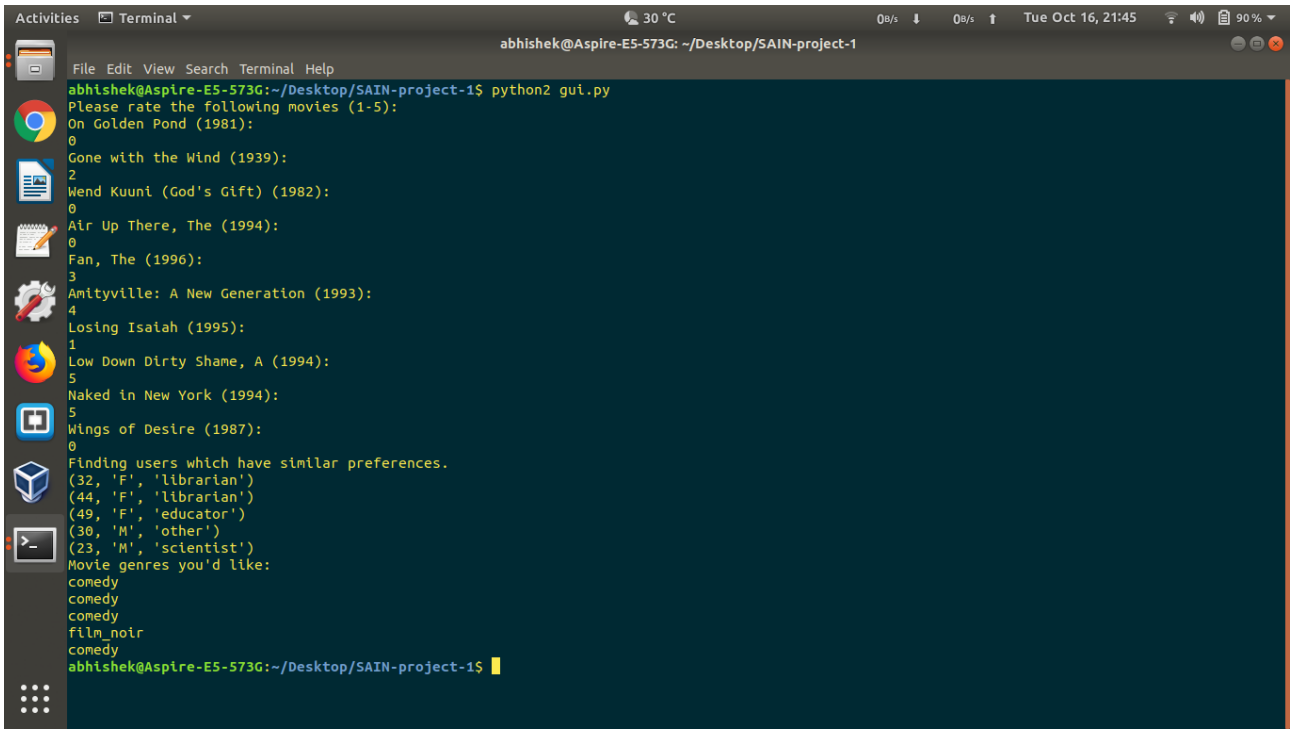
We are planning on making a movie recommender system using Pearson's similarity measure and then cluster the similar used using K-means clustering algorithm. If time permits, we will try to run the project on a cluster of computers using Apache Spark to calculate the similarity matrix relatively faster.

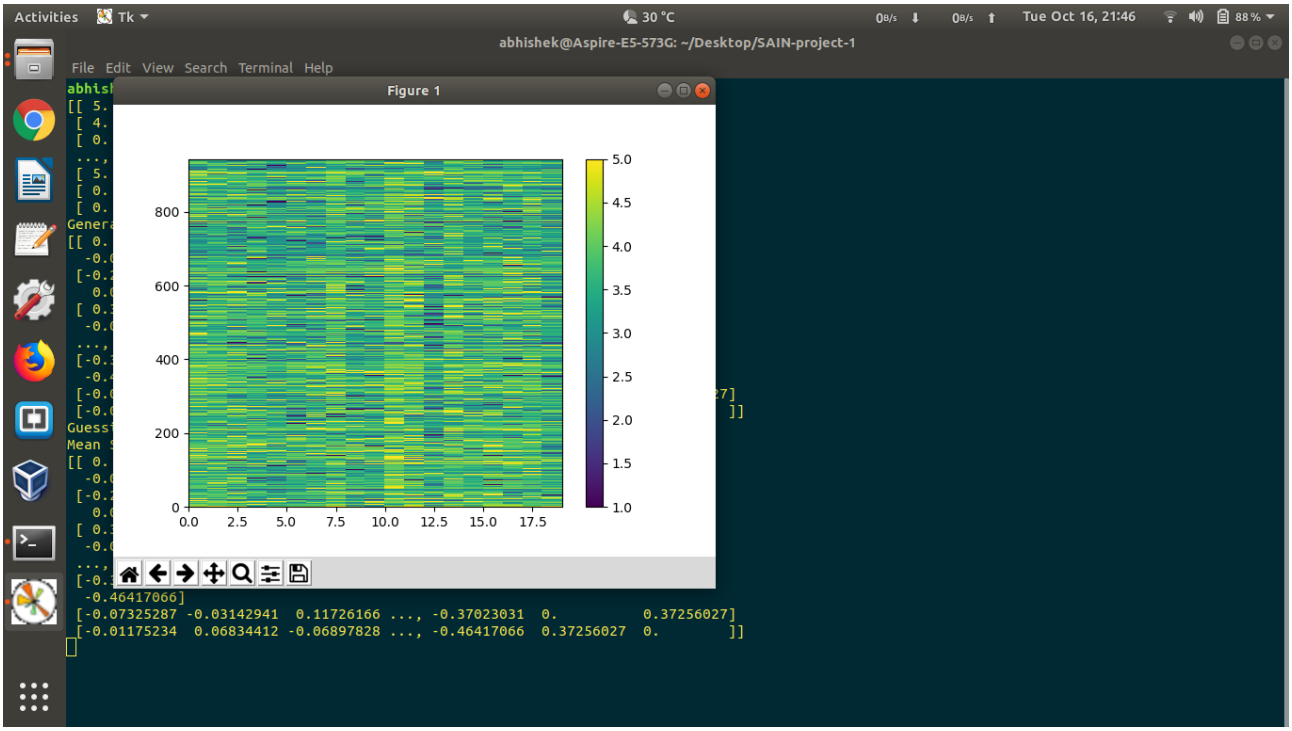
Results and Discussion

The python recommender on terminal output:






Activities
Terminal
30 °C
Tue Oct 16, 21:45
90 %
abhishek@Aspire-E5-573G: ~/Desktop/SAIN-project-1
File Edit View Search Terminal Help
abhishek@Aspire-E5-573G:~/Desktop/SAIN-project-1$ python2 gui.py
Please rate the following movies (1-5):
On Golden Pond (1981):
0
Gone with the Wind (1939):
2
Wend Kuuni (God's Gift) (1982):
0
Air Up There, The (1994):
0
Fan, The (1996):
3
Amityville: A New Generation (1993):
4
Losing Isaiah (1995):
1
Low Down Dirty Shame, A (1994):
5
Naked in New York (1994):
5
Wings of Desire (1987):
0
Finding users which have similar preferences.
(32, 'F', 'librarian')
(44, 'F', 'librarian')
(49, 'F', 'educator')
(30, 'M', 'other')
(23, 'M', 'scientist')
Movie genres you'd like:
comedy
comedy
comedy
film_noir
comedy
abhishek@Aspire-E5-573G:~/Desktop/SAIN-project-1$


Activities
Tk
30 °C
Tue Oct 16, 21:46
88 %
abhishek@Aspire-E5-573G: ~/Desktop/SAIN-project-1
File Edit View Search Terminal Help
Figure 1
0
200
400
600
800
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
-0.46417066]
[-0.07325287 -0.03142941 0.11726166 ..., -0.37023031 0. 0.37256027]
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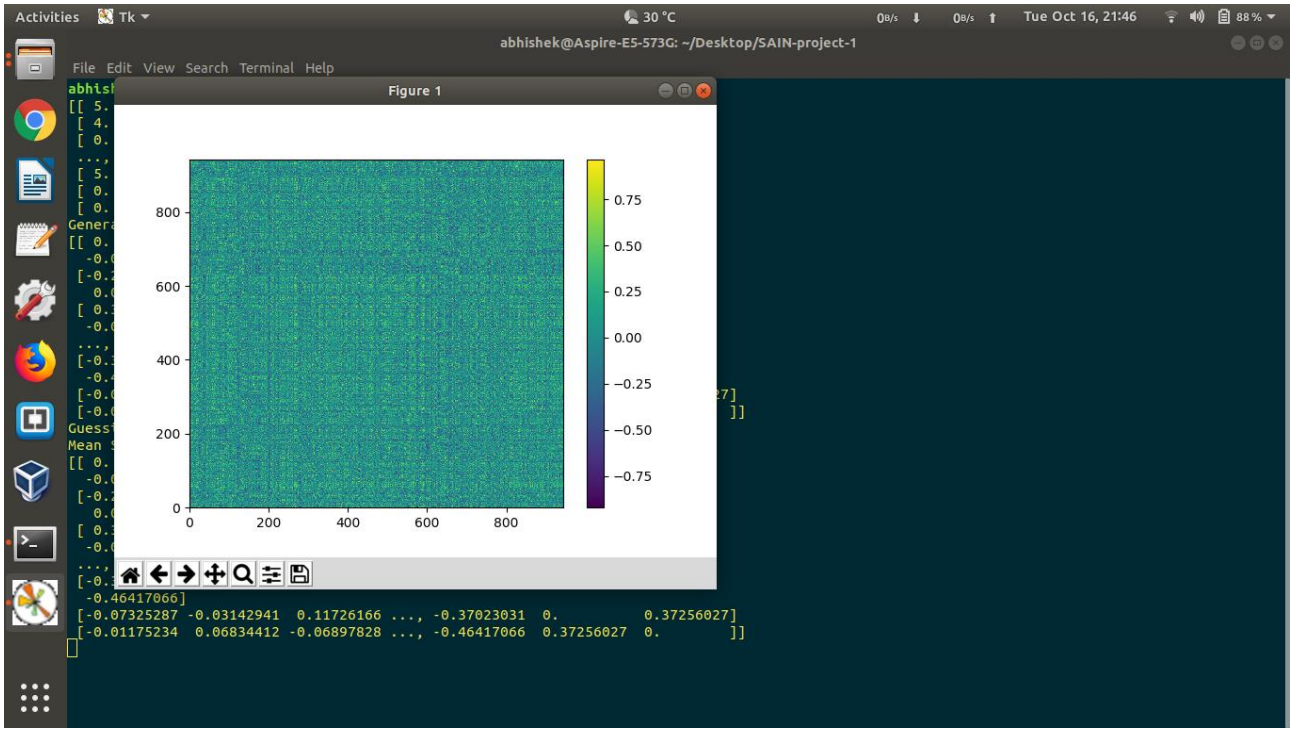

References

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2) http://www.ijesrt.com/issues%20pdf%20file/Archive-2016/November-2016/63.pdf
3) https://www.sciencedirect.com/science/article/pii/S1110866516300470
4) https://www.ijedr.org/papers/IJEDR1404092.pdf
5) https://pdfs.semanticscholar.org/2d04/c6d8508d426e859072b9141007c88f759969.pdf