Capstone Project Submission

Instructions:

i) Please fill in all the required information.

ii) Avoid grammatical errors.

Team Member's Name, Email and Contribution:
1. **Aniket Suresh Satpute** **Email-id: -** aniketsatpute000@gmail.com ❖ **Contribution-** ➔ Dimensioning of dataset. Age distribution Top 10 authors which have written more books. Top 10 books which are rated by the greatest number of users. ➔ General chart of recommended books to all users ➔ Popularity based filtering ➔ Analysis of collaborative filtering model results. ➔ Finding the k nearest neighbor. ➔ Testing our model and make few recommendations 2. **Kaiwalya Dashrath Zankar** **Email-id: -** kaiwalyazankar@gmail.com ❖ **Contribution -** ➔ Checking the presence of NAN values by using the tool missing value matrix. ➔ Exploration of location based on users' preference. ➔ Top 10 publishers which have publish the most numbers of books. ➔ Merging all data set. ➔ Model based collaborative filtering. (Item – item) ➔ Optimization of SVD algorithm ➔ Model based collaborative filtering (user– item)
Please paste the GitHub Repo link-

GitHub Link: - Aniket-Satpute/Book-Recommendation-System (github.com)

Please write a short summary of your Capstone project and its components. Describe the problem statement, your approaches and your conclusions. (200-400 words)

Book recommendation is created and deployed in this approach of work, which helps in recommending books. Recommendation achieved by the users' feedbacks and rating, this is the online which analyze the ratings, comments and reviews of user, negative positive nature of comments using opinion mining. Whenever we search a book and we get lots of book having same name at that time recommendation model helps a lot. Whenever we search a book and we get lots of book having same name at that time recommendation model helps a lot.

In this project, we are analyzing the various aspects with different use cases which covers many aspects of It and helps in not only understanding the meaningful relationships between attributes but it also allows us to do our own research and come-up with our findings.

perform some EDA to understand the data and clean the data, engineer relevant features, build predictive models to predict and perform some statistical analyses to obtain a greater understanding of the features and their interactions.

The given data set comprise of 3 data in which the user data having 39% of missing values in age column and also the most active users between 20 and 30's. Most number of users are from USA. Inbox data set author Christy has written a greater number of books and Harlequin was top publisher. In rating data set it gives the range of 0 to 10. 10 for explicit higher appreciation and vice versa 0 for implicit ones, so we need to segregate them.

Finally, we must all data sets and first we use popularity-based filtering as the name suggest it works on trends, then after we use model based recommended system to predict the user preference based on past experience there are two popular approaches -content based and collaborative best.

In collaborative based we filter out items that the users may like on basis of reaction of similar user.

There are two types of collaborative-based filtering -model based and memory based. In model based we used to predict user rating which involves dimensionally reduction from high dimensional Matrix to low dimensional one so we use Matrix factorization techniques that are singular value decomposition (SVD) and non-negative factorization (NMF) out of which SVD gives better result in terms of accuracy and training/testing time finally the accuracy of top recommendations provided to user and company to item the users actually interacted with

For modelling it was observed that model based collaborative filtering using SVD techniques is better than NMF. Memory based approach item-item CF performed better than item-user CF because of lower computation.

Recommender systems are a powerful new technology for extracting additional value for a business from its user databases. Recommender systems benefit users by enabling them to find items they like. Conversely, they help the business by generating more sales.

Drive Link:- Book Recommendation System - Google Drive