**Capstone Project Submission**

**Instructions:**

i) Please fill in all the required information.

ii) Avoid grammatical errors.

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| **Team Member’s Name, Email and Contribution:** |
| 1. Name: - Vikrant Hada Email ID: - [vikrant098hada@gmail.com](mailto:vikrant098hada@gmail.com)  * Contributed In notebook helped with google diver data connectivity, Data cleaning, Feature creation, feature engineering and feature selection on ratings data set and merging data, EDA, Visualization, Analysis of independent and dependent Variable, helped in Popularity Based Filtering, Analysis of Collaborative Filtering model results, Absolute error of predicted ratings, Collaborative Filtering based Recommendation System (User-Item based), model training, model evaluation. * Contributed for the contents of ppt. * Contributed in Technical Documentation in content of problem statement goal of project and steps involved.      1. Name: - Vijay Jangid Email ID: - [vijayjangid123@gmail.com](mailto:vijayjangid123@gmail.com)  * Contributed in notebook helped with google diver data connectivity, Data cleaning, Feature creation, feature engineering and feature selection on book data set and merging data, EDA, Visualization, Analysis of independent and dependent Variable, helped in Optimization of SVD algorithm, Analysis of Collaborative Filtering model results, Absolute error of predicted ratings, Collaborative Filtering based Recommendation System (Item-Item Based), model training, model evaluation. * Contributed in presentation PPT with points to be covered and all the images * Contributed in Technical Documentation in content of problem statement goal of project and steps involved. |
| **Please paste the GitHub Repo link.** |
| GitHub Link:- ***https://github.com/hadavikr/Book-Recommender-System/tree/main*** |
| **Please write a short summary of your Capstone project and its components. Describe the problem statement, your approaches and your conclusions. (200-400 words)**  A book recommendation system is a type of recommendation system where we have to recommend similar books to the reader based on his interest. The books recommendation system is used by online websites which provide ebooks like google play books, open library, good Read’s, etc.  Recommendation system filters information by predicting ratings or preferences of consumers for items that the consumer would like to use. It tries to recommend items to the consumer according to his/her needs and taste. RS mainly uses two methods to filter information - Content-based and Collaborative filtering. Content-based filtering involves recommending those items to a consumer which are similar in content to the items that have already been used by him/her. First, it makes a profile of the consumer, which consists of his/her taste. Taste is based on the type of books rated by the consumer. The system analyses the books that were liked by the consumer with the books he had not rated and looks for similarity. Out of these unrated books, the books with the maximum value of similarity index will be recommended to the consumer. Paul Resnick and Hal Varian were the ones who suggested Collaborative filtering algorithm in 1997. It became popular amid the various frameworks available at that time. A complete RS contains three main things: user resource, item resource and the recommendation algorithm. In the user model, the consumers' interests are analyzed, similarly, the item model analyses the items' features. Then, the characteristics of the consumer are matched with the item characteristics to estimate which items to recommend using the recommendation algorithm. The performance of this algorithm is what affects the performance of the whole system. In memory-based CF, the book ratings are directly used to assess unknown ratings for new books. This method can be subdivided into two ways: User-based approach and Item-based approach.  We found that Majority of the readers were of the age bracket 20 - 40 and most of them came from North American and European countries namely USA, Canada, UK, Germany and Spain.  Author with the most books was Agatha Christie, William Shakespeare and Stephen King.  For modeling, it was observed that for model based collaborative filtering SVD technique worked way better than NMF with lower Mean Absolute Error (MAE). Amongst the memory based approach, item-item CF performed better than user-user CF because of lower computation requirements . |