# Capstone Project Submission

## Book Recommendation System

**Instructions:**
i) Please fill in all the required information.
ii) Avoid grammatical errors.

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## Team Member's Name, Email and Contribution:

**Name**- Saurabh Ravindra Shinkar

**Email**- saurabhshinkar26@gmail.com

**Contribution**- Everything in the project

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## Please paste the GitHub Repo link.

**GitHub Link:**

 https://github.com/saurabhshinkar/Book-Recommendation-system

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

We have a dataset of Users, Books and Ratings. Problem statement was to create a book recommendation system for users. 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.

First step was to clean the dataset and make it in proper format, making proper features was important.

Next to get the solution of the problem statement it was necessary to understand each feature in our dataset.

After analysing each feature separately, we started to implement different collaborative filtering models to data.

SVD - Singular Value Decomposition, SVD ++, NMF - Non-negative matrix factorization, Slope One

These models are applied to the data.

We have Explicit feedback recommender system hence root mean square error and mean absolute error used as evaluation matric.

## Conclusions from project-

- Wild Animus is the best-selling book

- Author Agatha Christie, William Shakespeare and Stephen King wrote most of the books

- Harlequin publication published the most books

- More than 50% readers are from USA

- Book-Ratings are negatively distributed with median rating of 8.

- Root mean squared error of model **SVD** is 0.31 and mean absolute error is 0.21

- Root mean squared error of model **NMF** is 0.34 and mean absolute error is 0.24

- Root mean squared error of model **Slope One** is 0.39 and mean absolute error is 0.27

- **SVD++** is the **best recommendation model** with root mean squared error of 0.30 and mean absolute error of 0.20