BOOK RECOMMENDATION SYSTEM
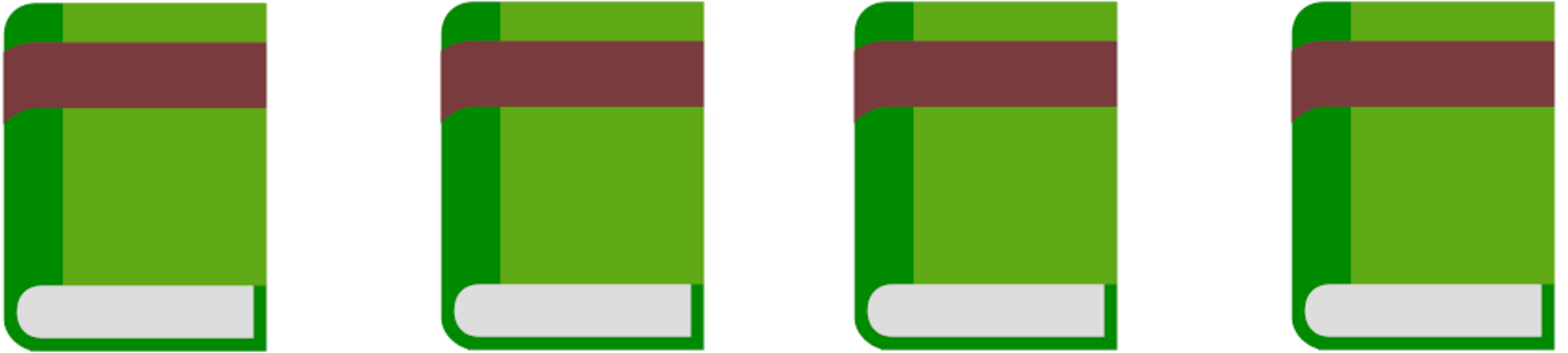
Shayan Abdul Karim Khan

07/08/2023

Book of The Quarter

OVERVIEW

AVERAGE 4 BOOKS READ PER YEAR PER PERSON

365 DAYS

OVERVIEW

INCREASE THE NUMBER OF BOOKS READ BY PEOPLE

MAKE IT SIMPLE AND EASY TO FIND NEW GOOD BOOKS

MAKE IT SIMPLE AND EASY TO EXPLORE NEW GENRES

RECOMMENDATION SYSTEM
NO BOOK STORE RUNS
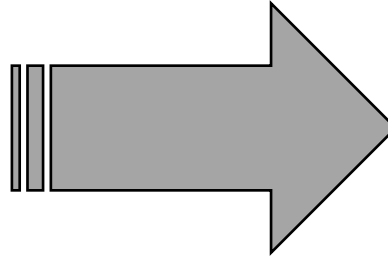NO RESEARCHING BOOKS
QUARTERLY 5 BOOKS AVAILABLE

GOAL

TOP 5

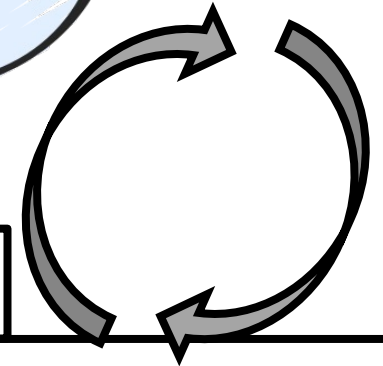**RECOMMENDATION MODEL**
5 BOOK RECOMMENDATIONS

ANALYSIS PROCESS

BOOK-CROSSING DATA CROSSED WITH AMAZON DATA FROM KAGGLE

ITERATIVE DATA CLEANING & PROCESSING

MODELLING

KNN Algorithm

www.educba.com

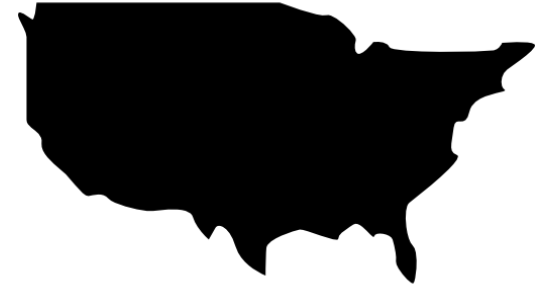SVD

NMF

EXPLORATORY ANALYSIS

TARGETTED NO OF
REVIEWS > 19

AVG RATING 7.9/10

TARGETTED AGES
16 – 60

USA DOMNIATED
80% OF THE DATA

60% RATINGS
UNKNOWN

60% OF COMPLETE DATA
USED FOR TRAINING

MODELLING RESULTS

MODELS	RMSE	MAE	MSE	FCP
SVD	1.37	1.10	1.88	0.54
KNN BASELINE	1.40	1.13	1.96	0.55
KNN WITH MEANS	1.50	1.16	2.26	0.71
KNN WITH Z-SCORE	1.51	1.16	2.27	0.71
NMF	1.58	1.26	2.50	0.57
KNN BASIC	1.62	1.27	2.62	0.59

RMSE → measures accuracy of predicted ratings

MAE → measures average magnitude of prediction errors

MSE → measures average squared difference b/w predicted and actual ratings

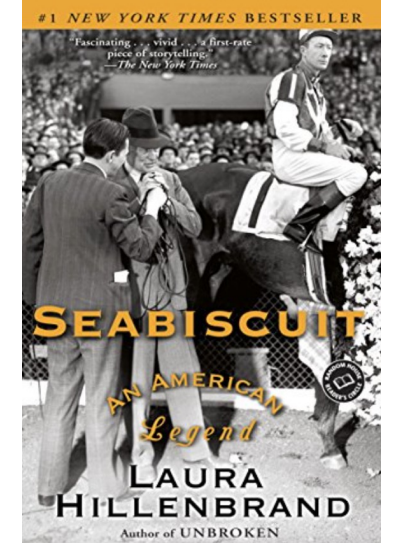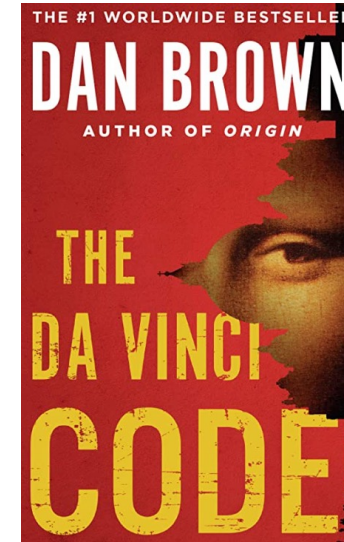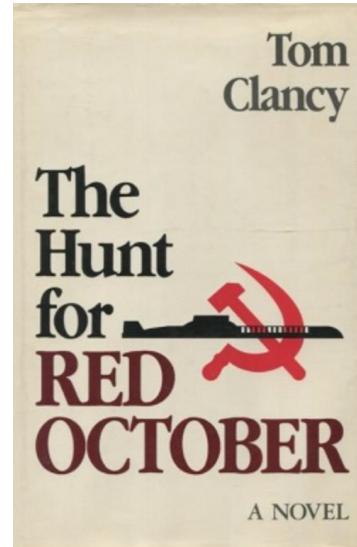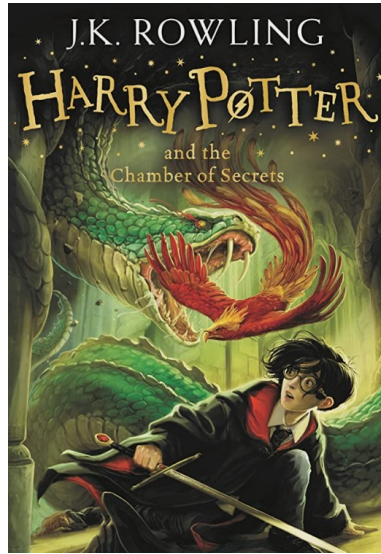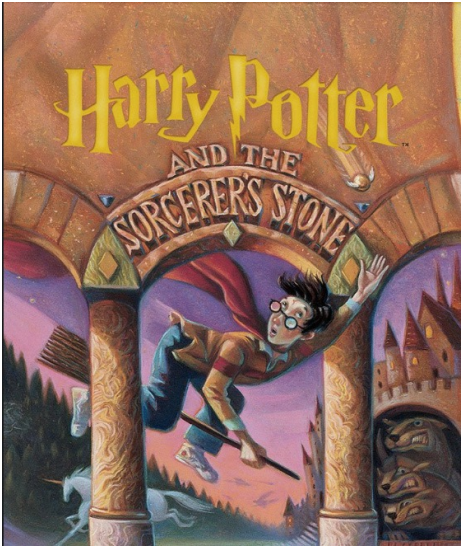**FCP** → measures the system's ranking accuracy

RMSE → used for selecting the final model

Ratings accuracy important for predicting unknow ratings

SVD was the best performing algorithm for RMSE, MAE and MSE

SVD used in conjunction with **collaborative filtering**

RECOMMENDATION RESULTS

- Original liking for Self-Help, Fantasy, Fiction, Romance

- Fantasy, Thriller, Fiction, and Adventure genres recommended

- Fiction Recommendations line up with liking for Hobbit and Lord of the Rings

- Popular titles recommended in similar genres

- There is a shift in genres and themes

- Popular titles not already reviews might be because of either missing data or book-based movies

- Eases into exploration of other genres and themes

- Identified widely recognized books that have the potential to engage and captivate readers

NEXT STEPS & IMPROVEMENTS

- Higher Granularity and features for user and product personas

- Further Parameter Optimization to bring RMSE down to 0.5

- Improve Sampling Methods to increase amount of training data

- Use hybrid approach to collaborative filtering

- Incorporate solution for cold start problem

QUESTIONS?

BOOK

RECOMMENDATION

SYSTEM

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BACKUP