Watching Great Movies and Uncovering Similar Movies Employing Recommendation Systems

Author: James Stipanowich

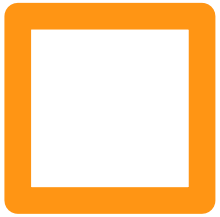
Date: May 30, 2021

Outline

- Overview/Business Problem
- Data
- Data Preparation
- Data Modeling
- Cold Start Problem
- Conclusions
- Recommendations for Further Analysis
- Contact Information

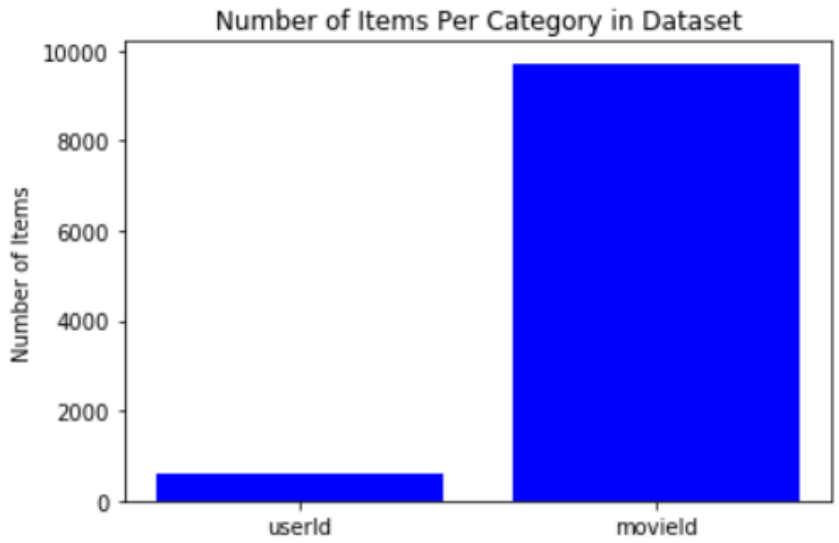
Overview/Business Problem

I am acting as a data scientist in a research lab at the University of Minnesota to build a recommendation system that recommends 5 highly rated movies to people in the University of Minnesota area based on some past information and opinions on great movies expressed by these people. I want to use a collaborative filtering method to define movie recommendations for these people.



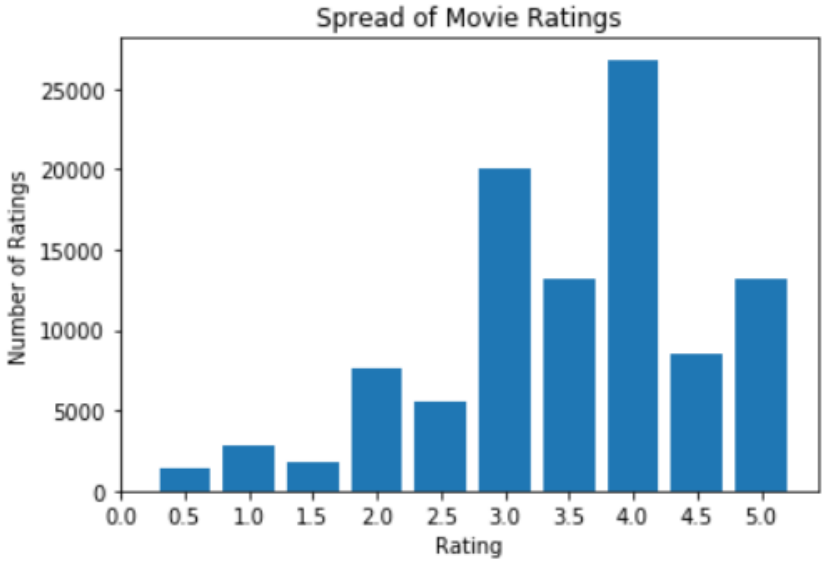
Data

- This project uses data from the MovieLens dataset from the GroupLens research lab at the University of Minnesota.
- The dataset covers 100836 ratings of movies from past viewings of movies.
- There are 610 individual movie raters and 9724 unique rated movies in the dataset.

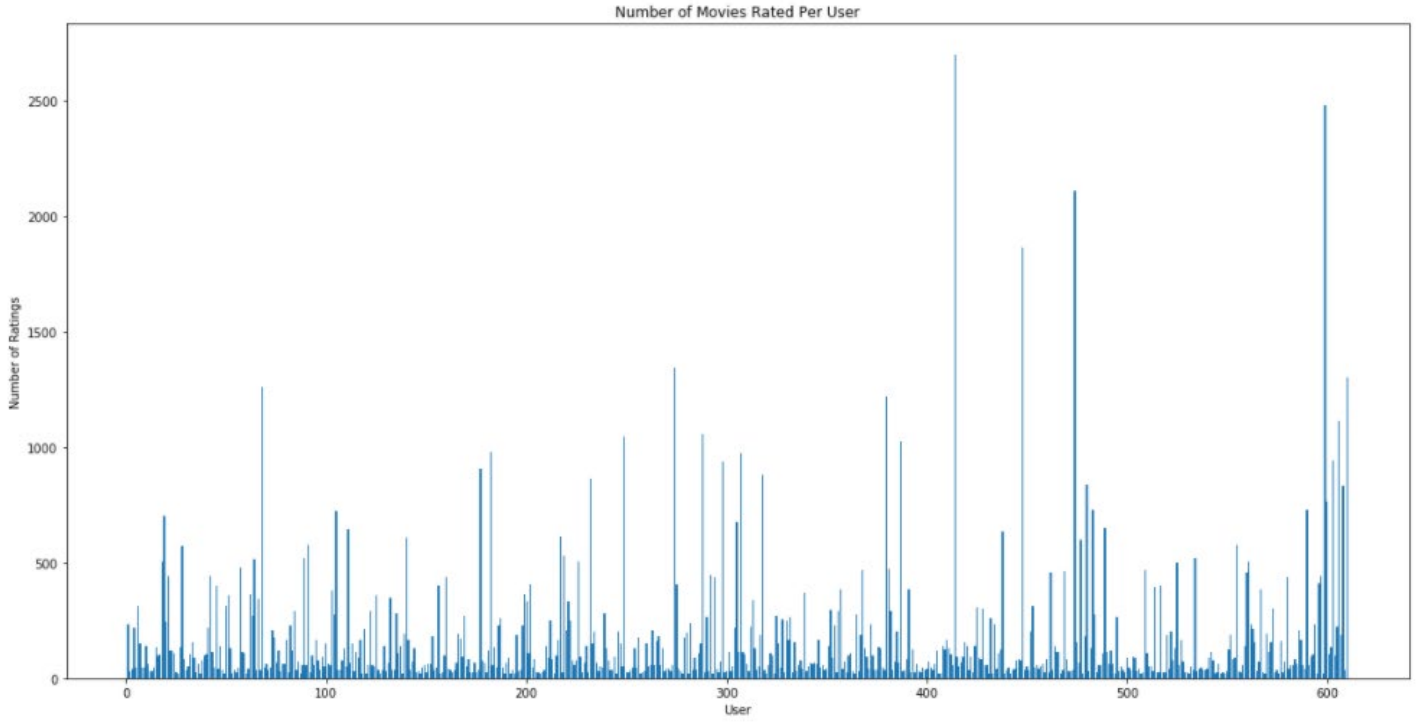


Data Preparation

-looked at spread of movie ratings



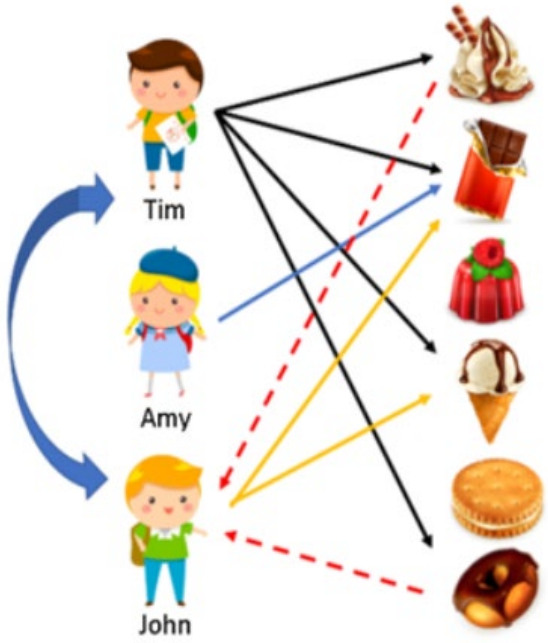
-constructed a graph of number of ratings for each user



Data Modeling

SVD model-Best Recommendation System

- Movies similar to user 43 who watched Toy Story and rated it a ‘5’
- Most movies recommended were released around the same year Toy Story was released
- Highly rated movies were mostly recommended



- Lowest RMSE of .8724
- Able to recommend any movie to any user in the dataset with estimated ratings
- Addresses the cold start problem

Cold Start Problem

- occurs when lacking new user information
- addressed using SVD matrix with provided information
- movies released around the same year as ‘Toy Story’ recommended
- movies considered popular with estimated rating a ‘5’

Conclusions

5 Similar Movies with SVD Model to “Toy Story”

- Apollo 13 (1995)/4.9
- Forrest Gump (1994)/5.0
- Star Wars: Episode IV - A New Hope (1977)/5.0
- The Jungle Book (1994)/4.8
- Mrs. Doubtfire (1993)/4.8

Recommendations for Further Analysis

- Change the distance metric and parameters for function-based recommendation system

- Deploy a recommendation system for use to new users

Thank you!

Email:
jmstipanowich@gmail.com

Github Link:

https://github.com/jmstipanowich/MovieRecommendations

Picture Sources:

https://myjourneymyride.co.nz/2017/08/29/old-school-childhood-fav-movies-top-10/

https://predictivehacks.com/how-to-run-recommender-systems-in-python/