



WebFlix

Recommendation System

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01

Business
Problem

Stakeholder: WebFlix

- New service providing a total aggregation of movies, old & new
- Personalized profiles based on movies watched and rated
- Maximize user base/subscriptions



Goal:
5
Recommended
Movies



02

Data Exploration

MovieLens Dataset



Ratings

100,836 reviews



Movies

9,742 unique movies

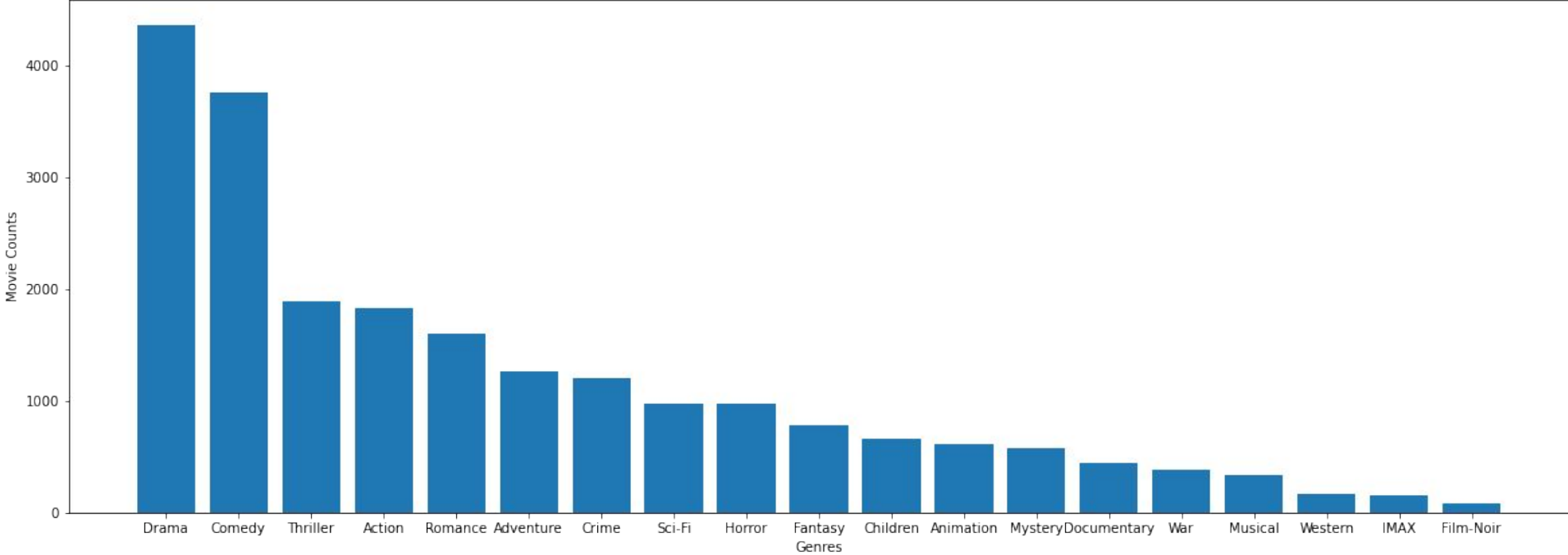


Users

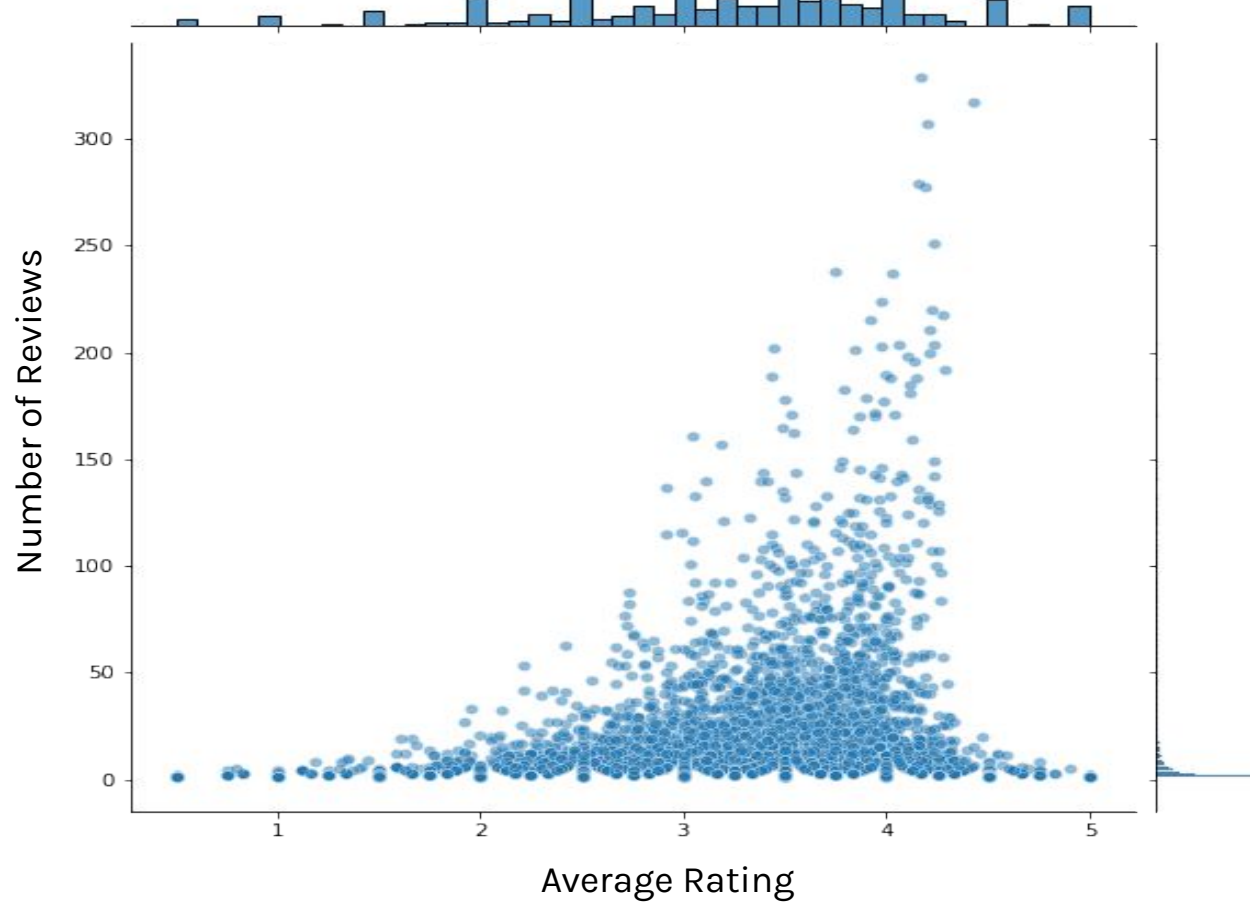
610 unique users



Genre Distribution



Number of Reviews to Average Rating



03

Systems



Collaborative Filtering



Surprise Library

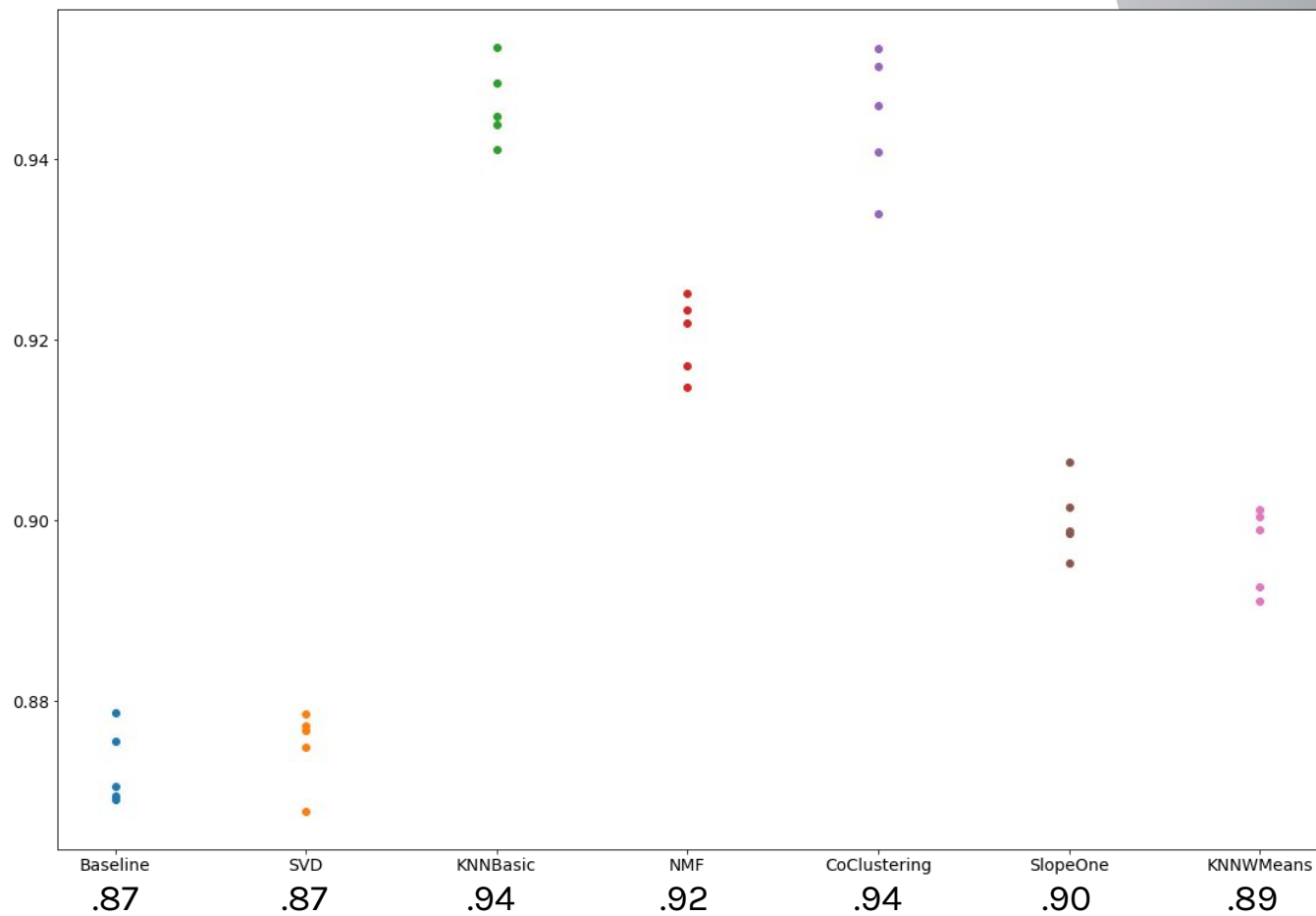
Provides algorithms for recommendation systems. RMSE is used as our metric to optimize

Predicts on User Behavior

Uses previous user behavior to draw similarities and make predictions



Cross Val RMSE Scores



Collaborative Filtering Final Model: SVD

n_factors=75

Number of factors

reg_all=0.05

Regularization term
for all parameters

Lr_all =0.01

Learning rate for all
parameters

RMSE=0.85

Minimizing
difference between
predicted and
actual



The Cold Start Problem



What is it?

3 situations it is a problem:

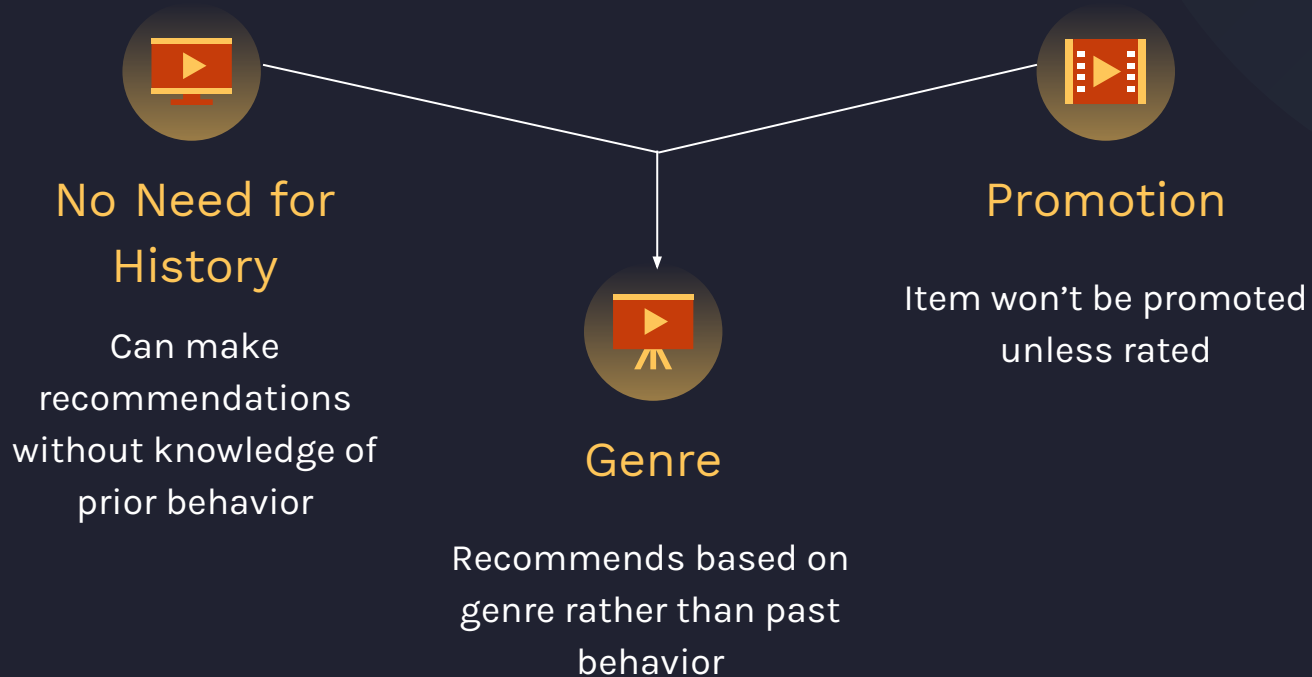
1. New Community
2. New Item
3. New User

How does it affect us?

This is not a new community, so 1 is not a problem. However, new items and new users still suffer from the cold start problem



Solution: Content Based Filtering



Content Based Filtering System



Next Steps

Large Dataset

Used the small dataset
for computational
reasons

01



02



03



04

Further Model Tuning

Tuning the model with a
different metric will yield
different results

Changing Metrics

Using NDCG instead
of RMSE

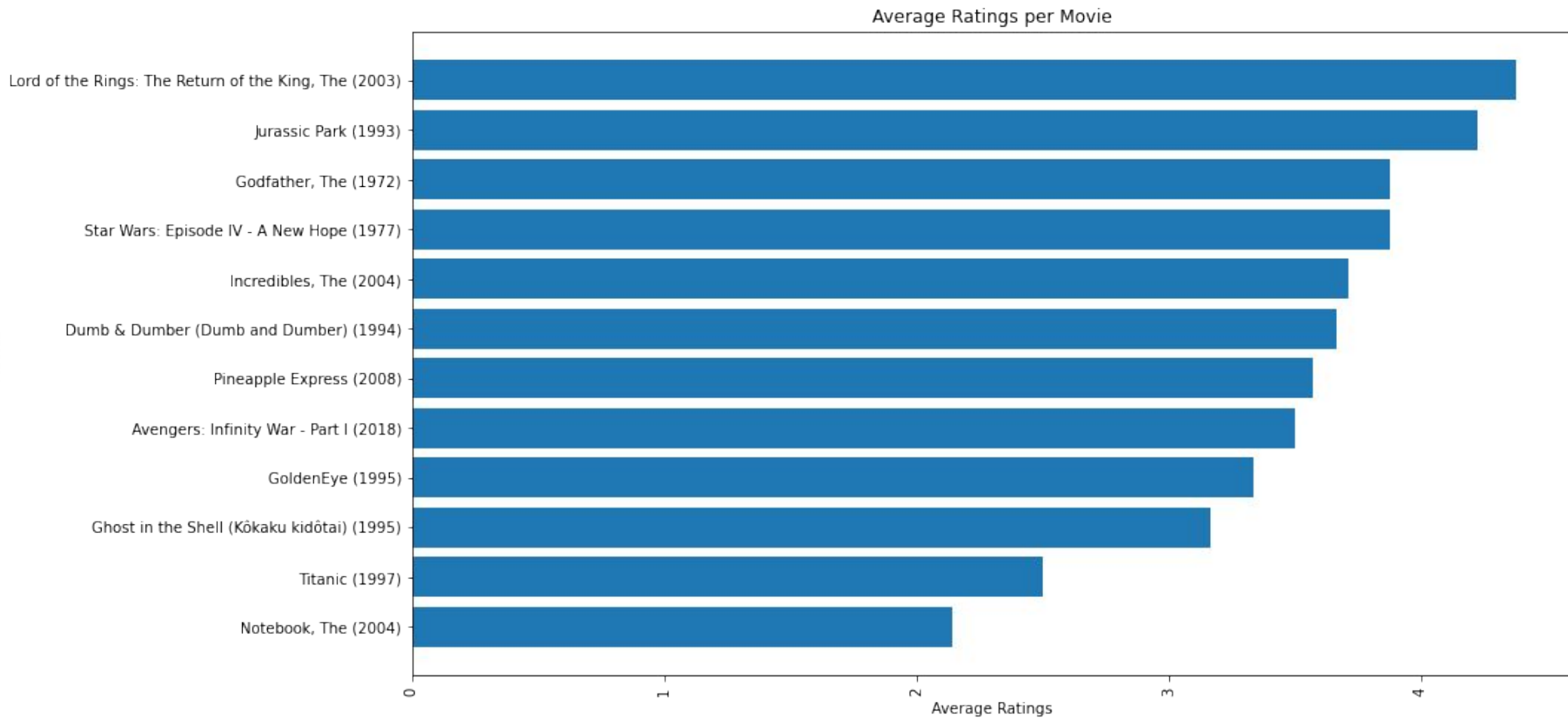
Deployment

Creating a webapp to
host our model



04

Profiles



Max B's Profile



A Detective Story (2003)



Abyss, The (1989)



Adventures in
Babysitting (1987)



All About the
Benjamins (2002)



Around the World
in 80 Days (1956)

Thank you!



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