MOVIE RECOMMENDATIONS

Abigail Campbell

HOW DO WE INCREASE THE VALUE OF OUR STREAMING SERVICE?

Generate Value	Users subscribing to our streaming service
Maximize Value	Giving current subscribers reasons to keep coming back
Increase Value	Inspire new users to subscribe

CAN WE PREDICT WHICH MOVIES OUR USERS WILL ENJOY?

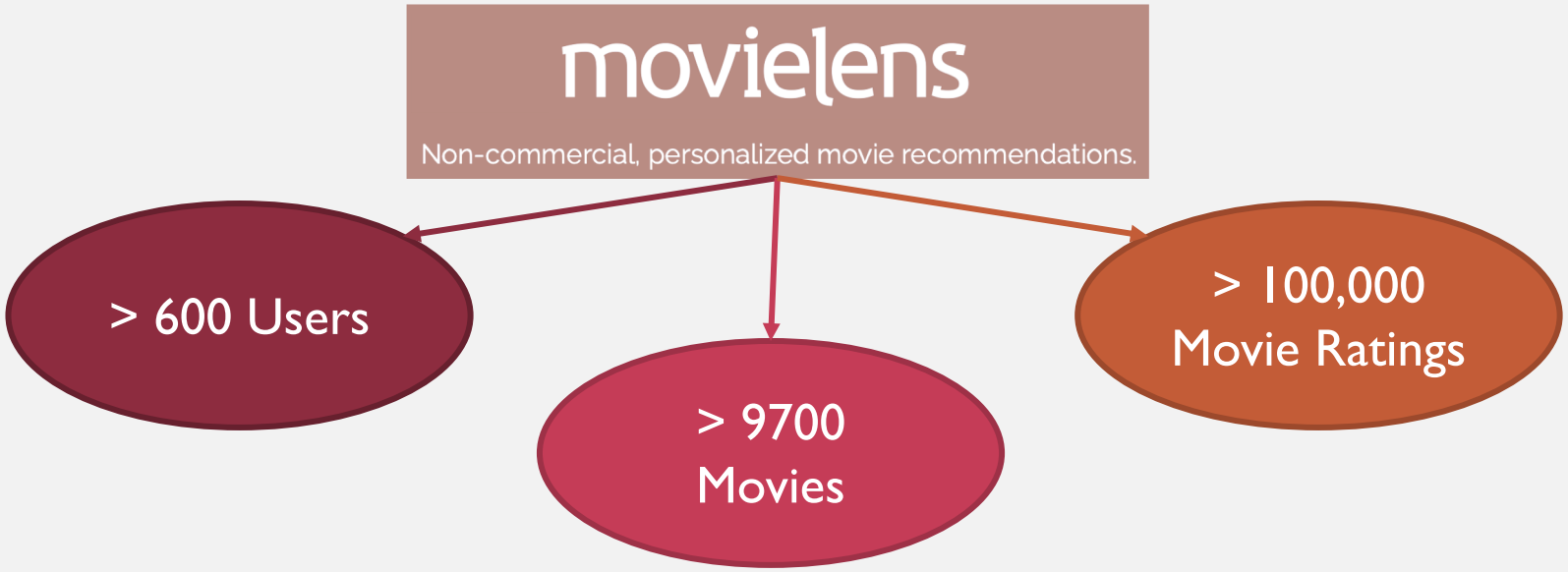
Goal:

Create a recommendation engine that accurately predicts movies a user will rate highly

Benefits:

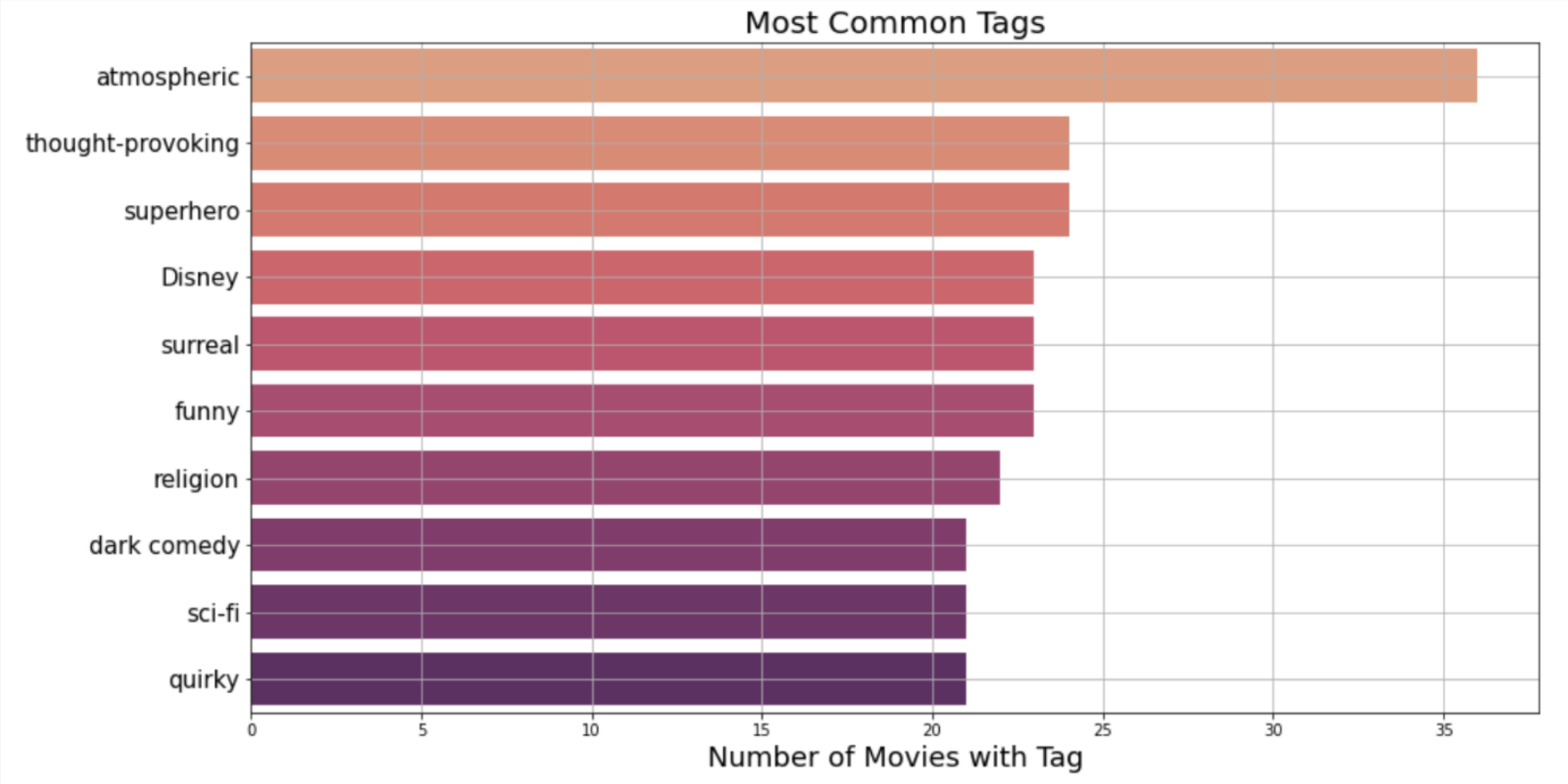
Keep streamers on our site	Attract new users	Identify new movies to add

WHAT DATA WILL TRAIN THE RECOMMENDATIONS?



Title | Genre | Tag | Rating

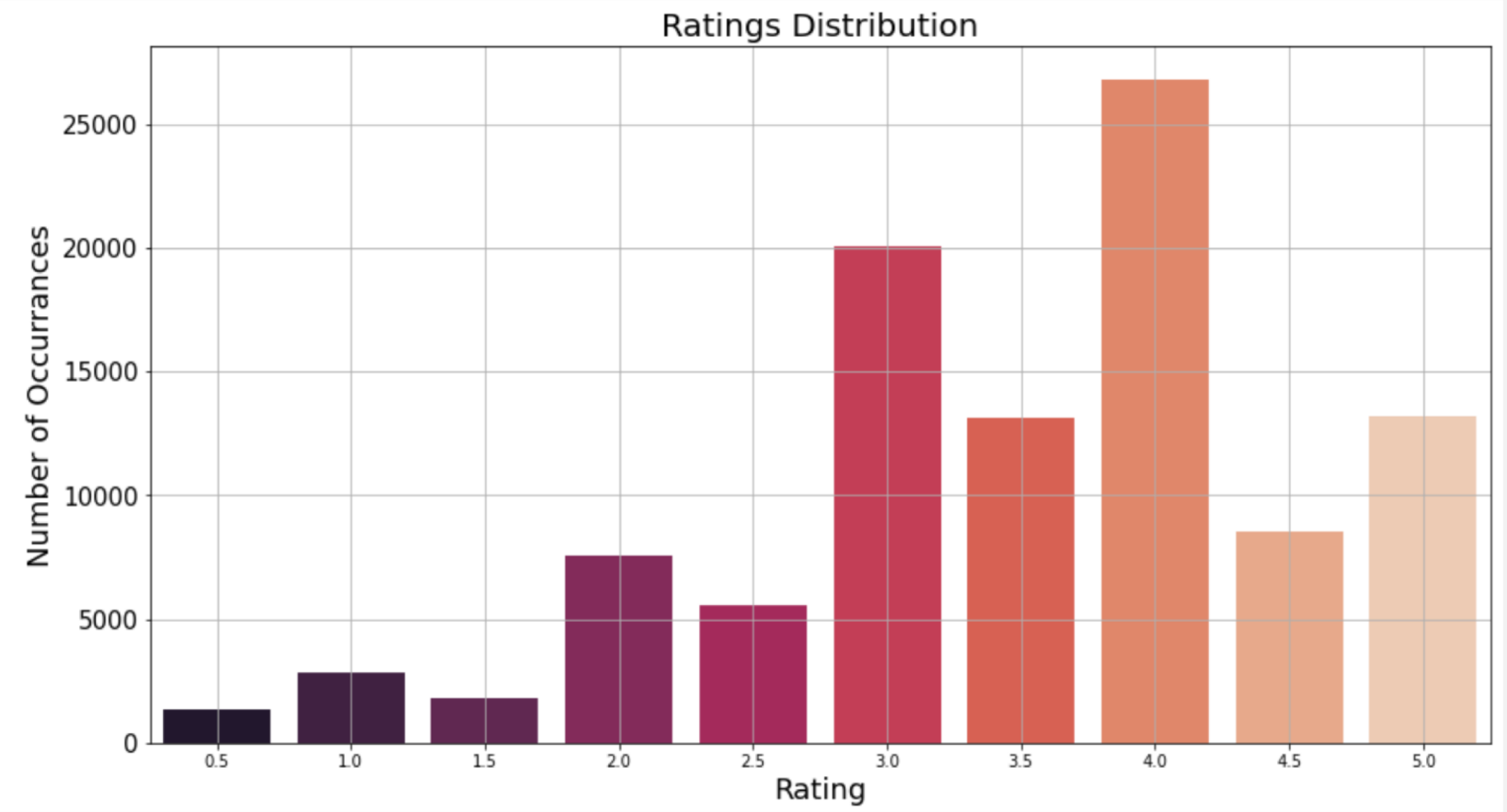
A LOOK INSIDE THE DATA - TAGS



There is a diverse set of tags

There will be a variety of movies to recommend

A LOOK INSIDE THE DATA - RATINGS

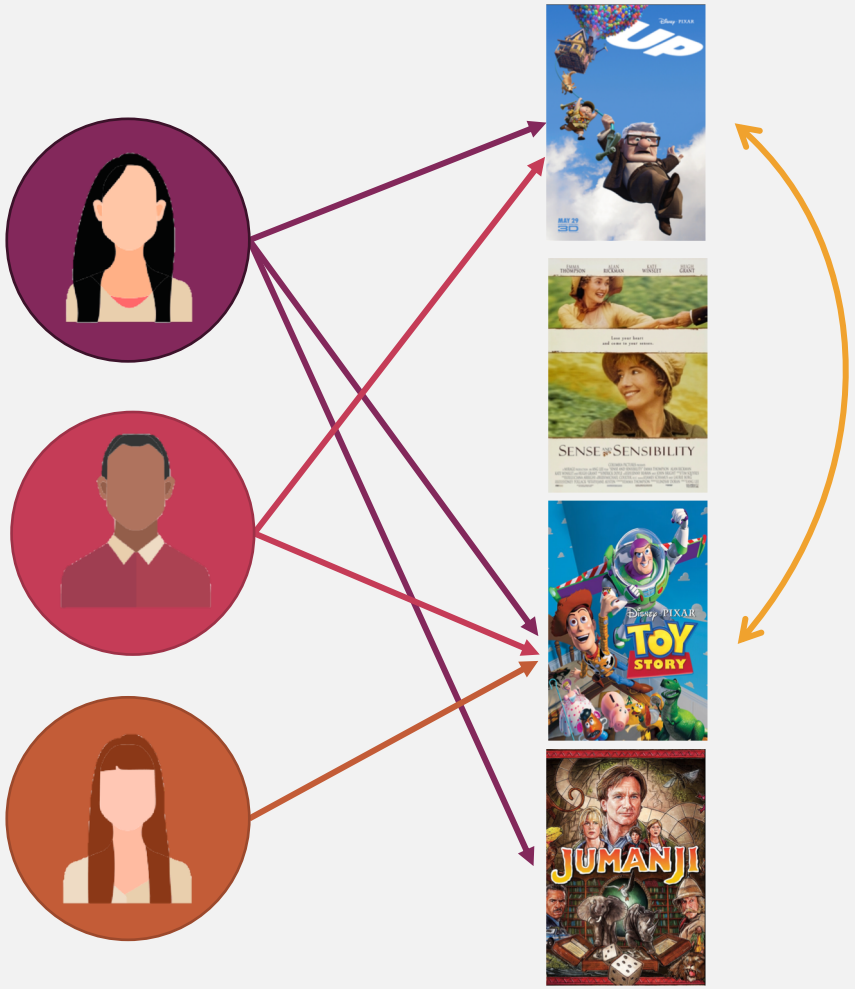


The users in this dataset tend to be generous in their ratings

More movies with high ratings will be available to recommend

RECOMMENDATION ENGINE

Recommends movies to users based on their similarity to the user's highly rated movies



Recommend to User 1

Singular Value Decomposition

- Model with the lowest error
  - RMSE = 0.869
- Item to item similarity

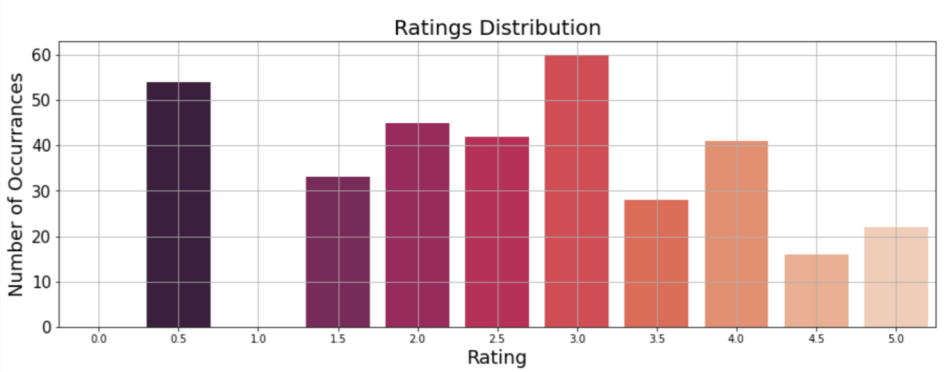
EXISTING USER RECOMMENDATI0NS

Three types of users we will generate recommendations for:

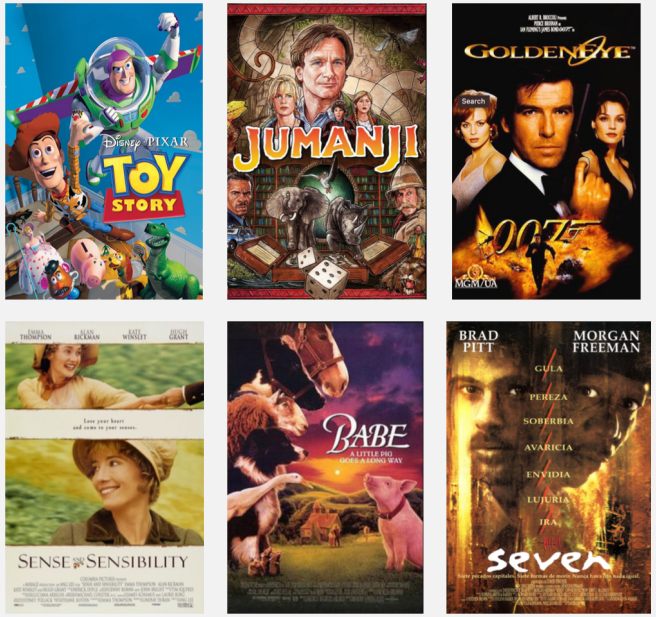
EXISTING USER RECOMMENDATIONS

User 517

400 Total Ratings



Top 6 Movies



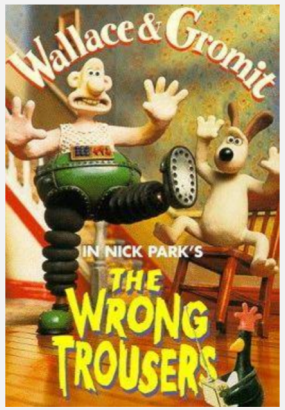
Top 5 Recommendations

NEW USER RECOMMENDATIONS

How do we recommend movies to a user with no ratings history?

1. Prompt to select key words from a list of tags and genres
    1. Mystery, funny, mafia, Martin Scorsese, time-travel, historical, etc.
2. Filter to only include movies with those tags

Disney, Animation, Children



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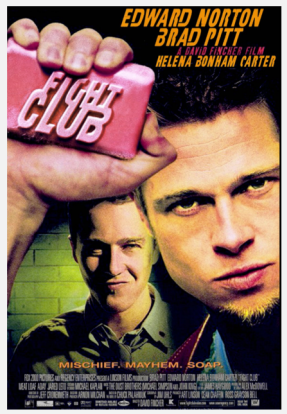
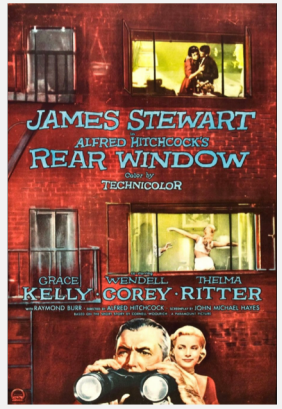
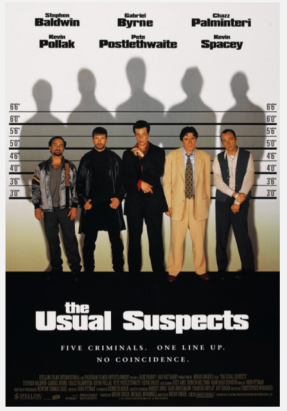
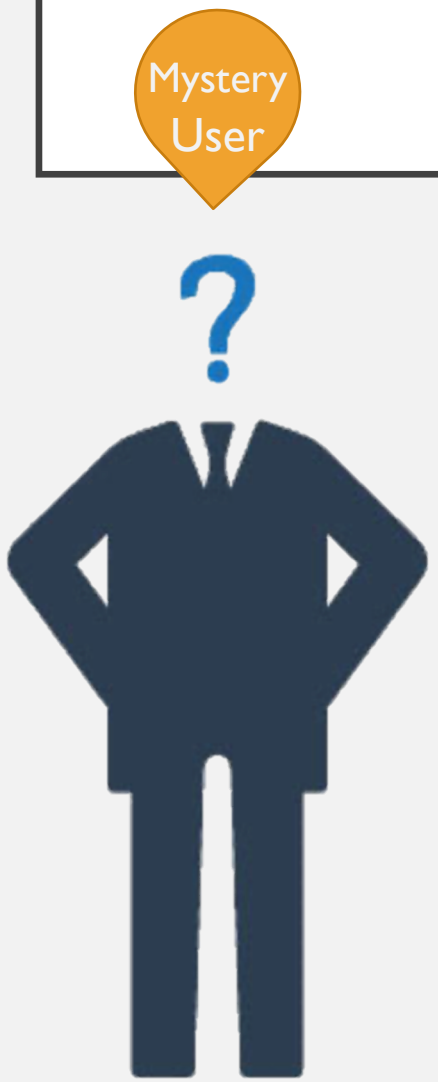
Suspense, Psychological, Mystery



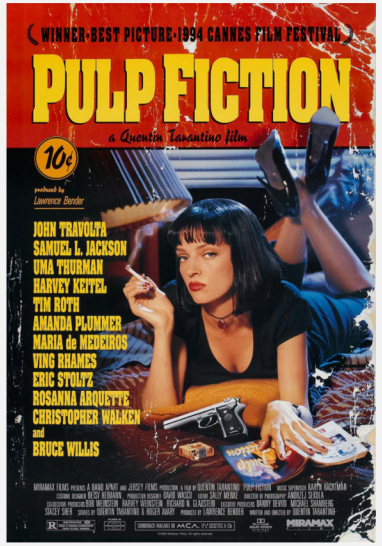




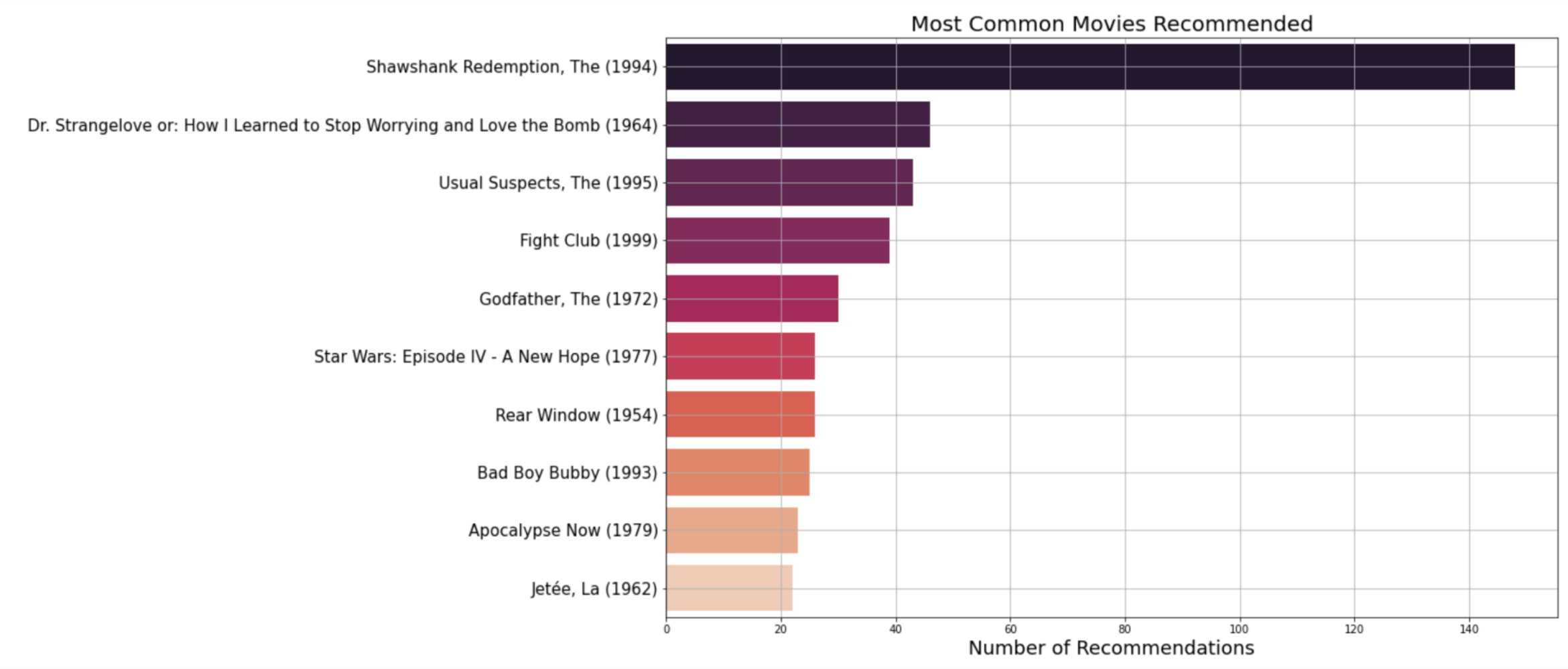
NEW USER – NO KEY WORDS OR RATINGS



Default Recommendation: Top 5 highest rated movies



TOP 10 MOST RECOMMENDED MOVIES



CONCLUSION

Recommending movies to users that they will enjoy will increase the value of our streaming service by:

1. Keeping current users hooked
2. Attracting new users
3. Identifying new movies to add that our users will be exited about

Three strategies will be used to recommend movies:

1. Current Users: recommend movies similar to their highly rated movies
2. New Users: recommend movies based on their initial preference words
3. Mystery Users: recommend highest rated movies

WHAT NOW?

Integrate the recommendation engine

- Integrate with our existing platform architecture

Beta Testing

- Test the recommendation engine on a small set of current users

CONTACT INFORMATION

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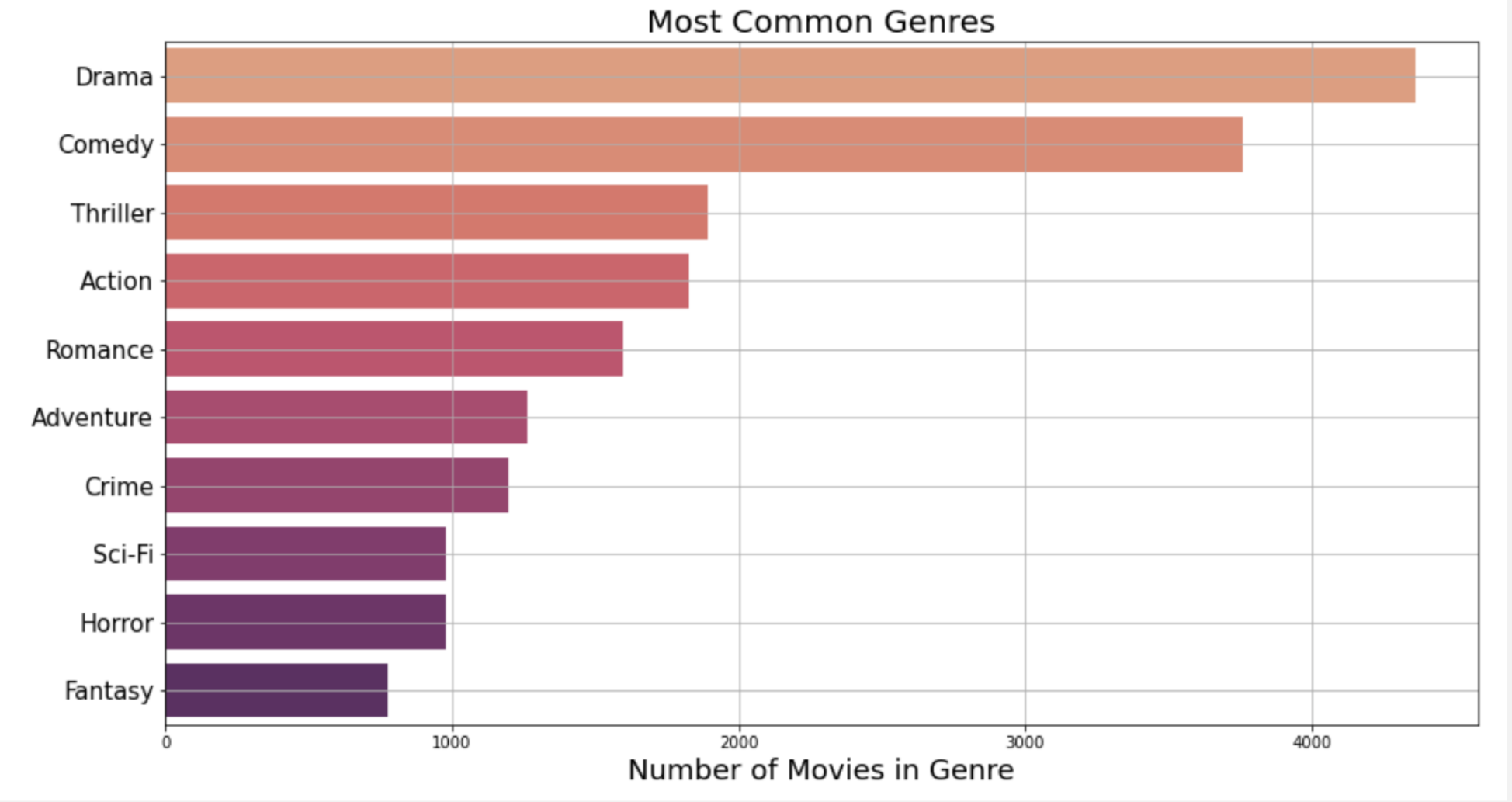
APPENDIX

A LOOK INSIDE THE DATA - GENRES



MODEL PERFORMANCE - KNN

Model	Similarity Metric	User or Item	RMSE	MAE
KNN Basic	Pearson	User	0.9671	0.7491
	Cosine	User	0.9684	0.7486
	Pearson	Item	0.9697	0.7519
	Cosine	Item	0.9771	0.7608
KNN Baseline	Pearson	User	0.8779	**0.6722**
	Cosine	User	0.8798	0.6743
	Pearson	Item	**0.8796**	0.6764
	Cosine	Item	0.8911	0.6869
KNN with Means	Pearson	User	0.8991	0.687
	Cosine	User	0.9052	0.6915
	Pearson	Item	0.9036	0.6926
	Cosine	Item	0.9066	0.6949

MODEL PERFORMANCE - SVD

Optimal parameters that resulted in the lowest error values for both RMSE and MAE

Model	n factors	reg all	n epochs	lr all	Metric	Value
SVD	40	0.04	10	0.01	RMSE	0.8686
SVD	40	0.02	10	0.01	MAE	0.6674