Presenting Vi(sion) Studio’s “Digital Cinema Night”

March 2022

Objective & Business Value

- **Objective —** Vi(sion) studios would like to offer a service called "Digital Cinema Night" where users can build a "Cinema Night" around specific movies

- **Business Value** — "Digital Cinema Night" will bring unique value to their users, and build long-term loyalty, by offering an experience for their users around a movie of choice vs. what users currently do - add items to their queue or have services automatically play movies without knowledge of recommendations

Data Source - MovieLens

movielens

- **“Users were selected at random for inclusion. All selected users had rated at least 20 movies. No demographic information is included. Each user is represented by an id, and no other information is provided.”**
- **Data:** 9724 unique entries and 610 unique users
- **Attributes:** Title, Year, Genre, Rating

Methodology

DATA

- 9724 entries, 610 unique users
- Metrics used:
  1. Movie Titles
  2. User Ratings

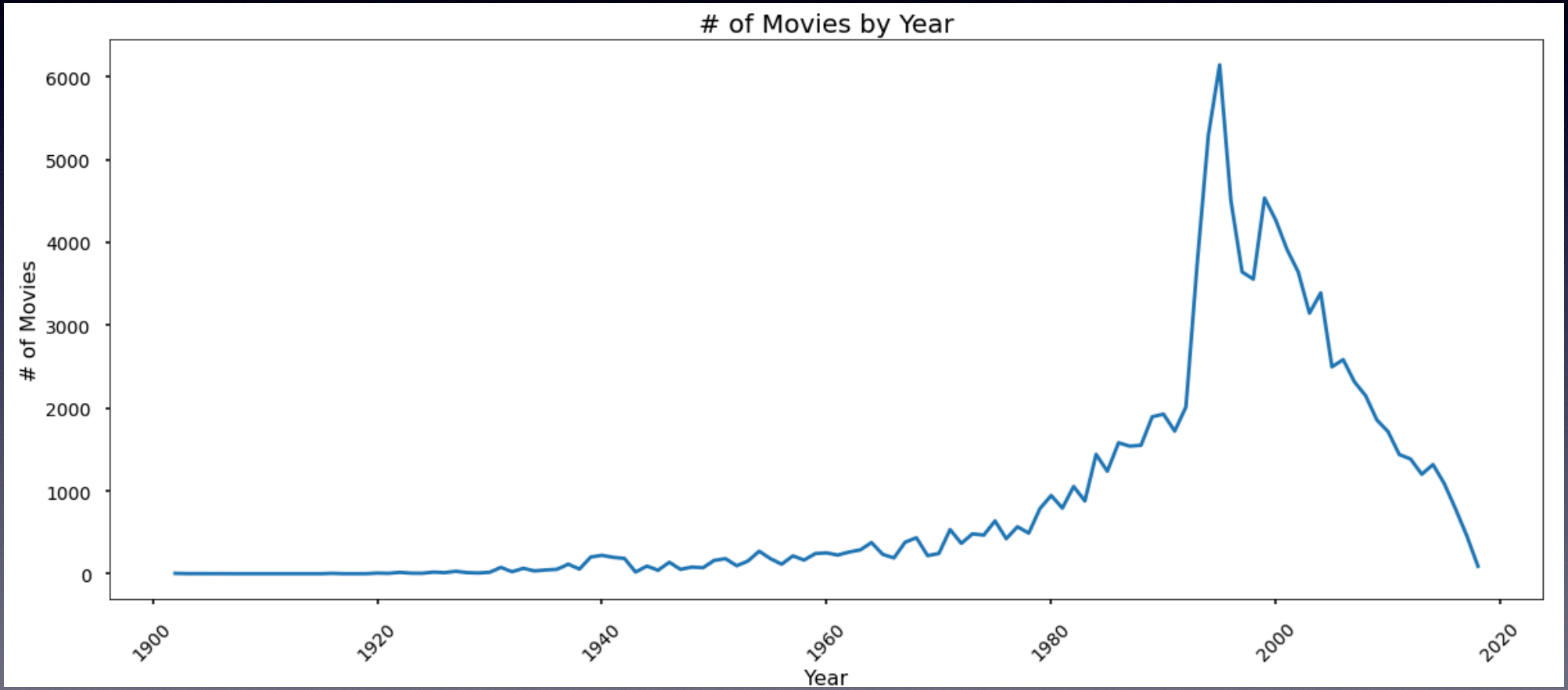
ANALYZE / PREPARE

- Refined dataset
- Added Year, and Ratings Counts

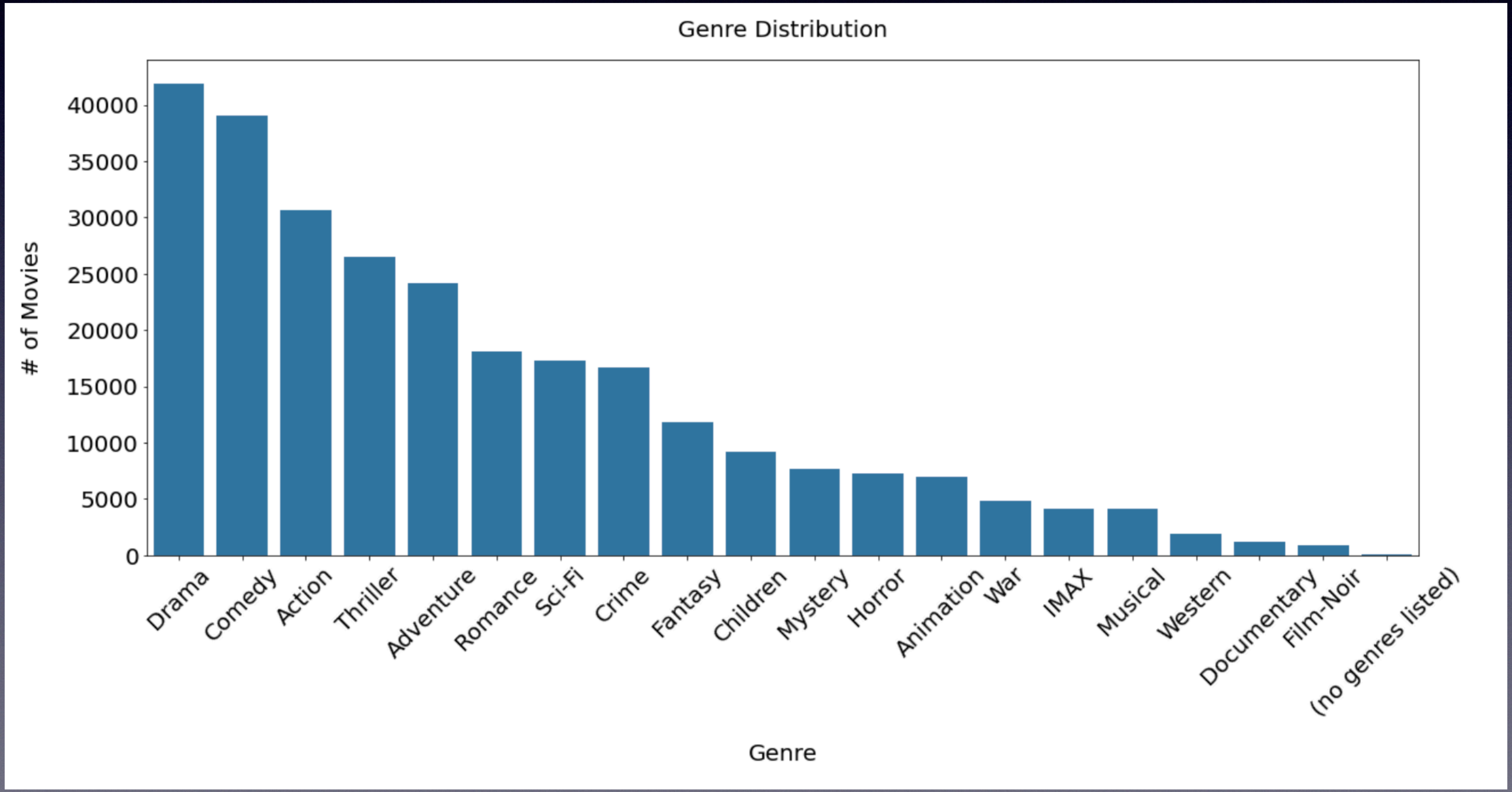
MODEL

1. Singular Value Decomposition Model (SVD)
2. KNN Baseline Model (KNNB)
3. Non-Negative Matrix Factorization Model (NMF)

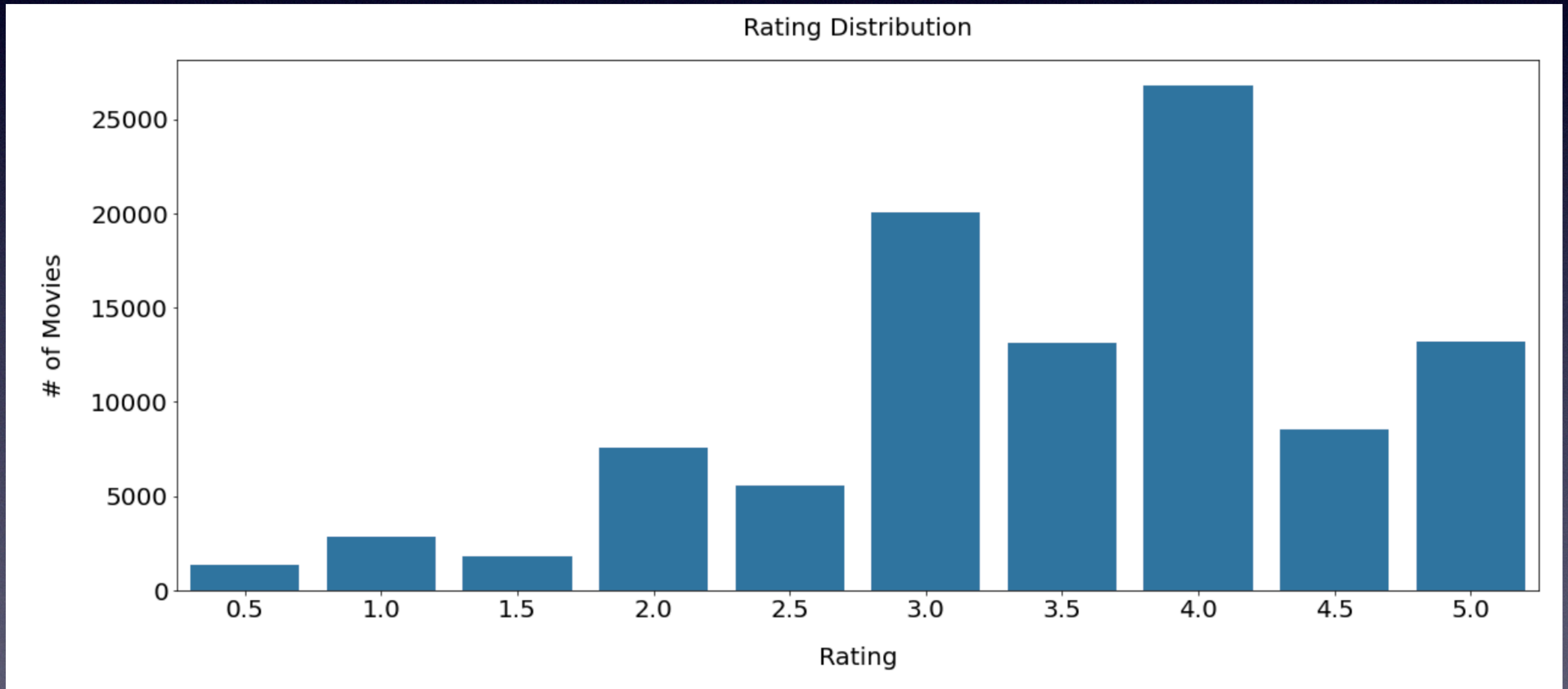
About the data: the majority of movies were from 1990s to the early 2000s



The most popular genres: Drama, Comedy, and Action



Users tend to rate in whole numbers and 4 (out of 5) is the most popular rating



All models created showed strong results/ predictions

- We used the metric RMSE (root mean square error) to evaluate our models
- This metric tells us how far a model's predictions are from actual results

Singular Vector Decomposition Model (SVD)

- Pre-Tuned RMSE: 0.95
- **Tuned RMSE: 0.86**

k-Nearest Neighbor Baseline Model (KNNB)

- Pre-Tuned RMSE: 0.96
- **Tuned RMSE: 0.39**

Non-Negative Matrix Factorization Model (NMF)

- Pre-Tuned RMSE: 1.12
- **Tuned RMSE: 0.30**

* For example, SVD Model's final RMSE is 0.86, which means that our model's predicted ratings on average are 0.86 points away from their actual ratings using this model

Results & Recommendations

Summary of recommendations

- **Use SVD Model to launch**
  - While all models showed improvement after tuning and KNN Baseline and NMF Models have low RMSEs (predictions are close to actual ratings), in order to reduce the risk of over-fitting, the SVD Model - with a strong RMSE of 0.86 - is recommended
- **Test for 6 months and re-evaluate**
  - Revisit KNN Baseline and/or NMF Models if necessary
- **Launch concept with Millennial (or Millennial-enthusiast) audience**
  - Movies leaned toward 1990s to early 2000s
  - Opportunity to build early loyalty with an influential demographic

Bringing your vi(sion) to life - the experience: DIGITAL CINEMA NIGHT

1. Users Input Movie

```
cinema_night_for('Toy Story')
```

2. Digital Cinema Night is created!

title	correlation	RatingsCount
Toy Story	1.000000	215
Incredibles, The	0.643301	125
Finding Nemo	0.618701	141
Aladdin	0.611892	183
Monsters, Inc.	0.490231	132
Mrs. Doubtfire	0.446261	144

Bringing your vi(sion) to life: DIGITAL CINEMA NIGHT

MORE EXAMPLES

```
cinema_night_for('Toy Story')
```

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Aladdin	0.611892	183
Monsters, Inc.	0.490231	132
Mrs. Doubtfire	0.446261	144

* backend results

```
cinema_night_for('Shawshank Redemption, The')
```

Four Weddings and a Funeral
Schindler's List
Usual Suspects, The
Ocean's Eleven
Green Mile, The

* what users will see

```
cinema_night_for('Godfather, The')
```

Godfather: Part II, The
Schindler's List
Fight Club
Saving Private Ryan
Goodfellas

Future Work

- Build functionality around genre and year choices
- Extend audience beyond initial millennial focus
- Expand dataset with more movie choices & continually refine “Digital Cinema Night” system to make stronger recommendations to users
- Build exquisite user interface

	genre	avg_rating
0	Adventure	3.50886
1	Animation	3.62998
2	Children	3.41311
3	Comedy	3.38471
4	Fantasy	3.491
5	Romance	3.50651
6	Drama	3.65619
7	Action	3.44798
8	Crime	3.65849
9	Thriller	3.49376
10	Horror	3.25834
11	Mystery	3.63246
12	Sci-Fi	3.45601
13	War	3.80815
14	Musical	3.56368
15	Documentary	3.79779
16	IMAX	3.61834
17	Western	3.58394
18	Film-Noir	3.92011


SHAWSHANK
REDEMPTION
Forrest Gump
WINNER OF 6 ACADEMY AWARDS
BEST PICTURE
The
Godfath
The
Godfather
PART II
GoodFellas
THE DREAM IS REAL.
INCEPTION
JULY 16
IMAX
TITANIC
A NEW
HOPE
tom hanks
saving private ryan
INGRID
BERGMAN · HEN
blanca

THANK YOU!!