Movie Recommendation System
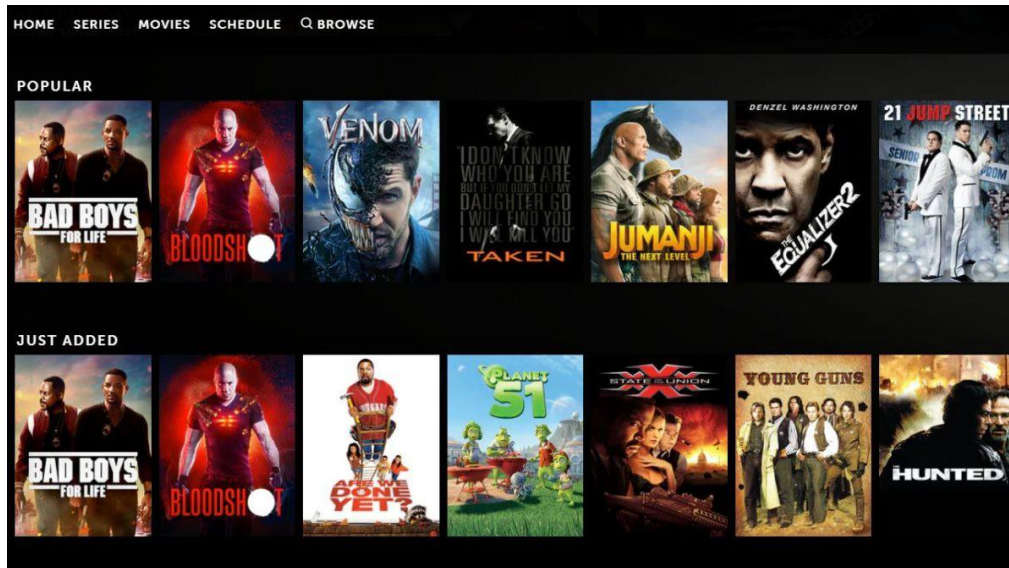
Objectives

- Business Understanding

- Data Understanding

- Key findings

- Methods

- Results

- Recommendations

- Conclusion

Introduction

A recommendation system refers to a system that is capable of predicting the future preference for a set of items for a user.
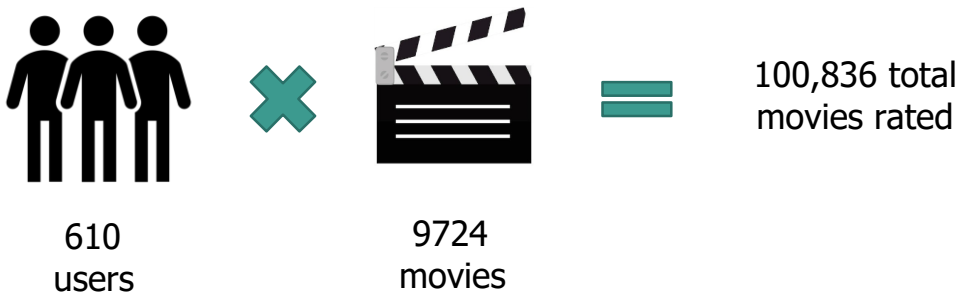
Business Understanding

- Cinemy is an upcoming movie streaming platform in the tech world.

- Despite having a massive database of movies, user satisfaction is not met.

- Most users complained that they found it tough to choose a movie to watch.

- To cushion this problem, they hired us to build a recommender system for their streaming platform.
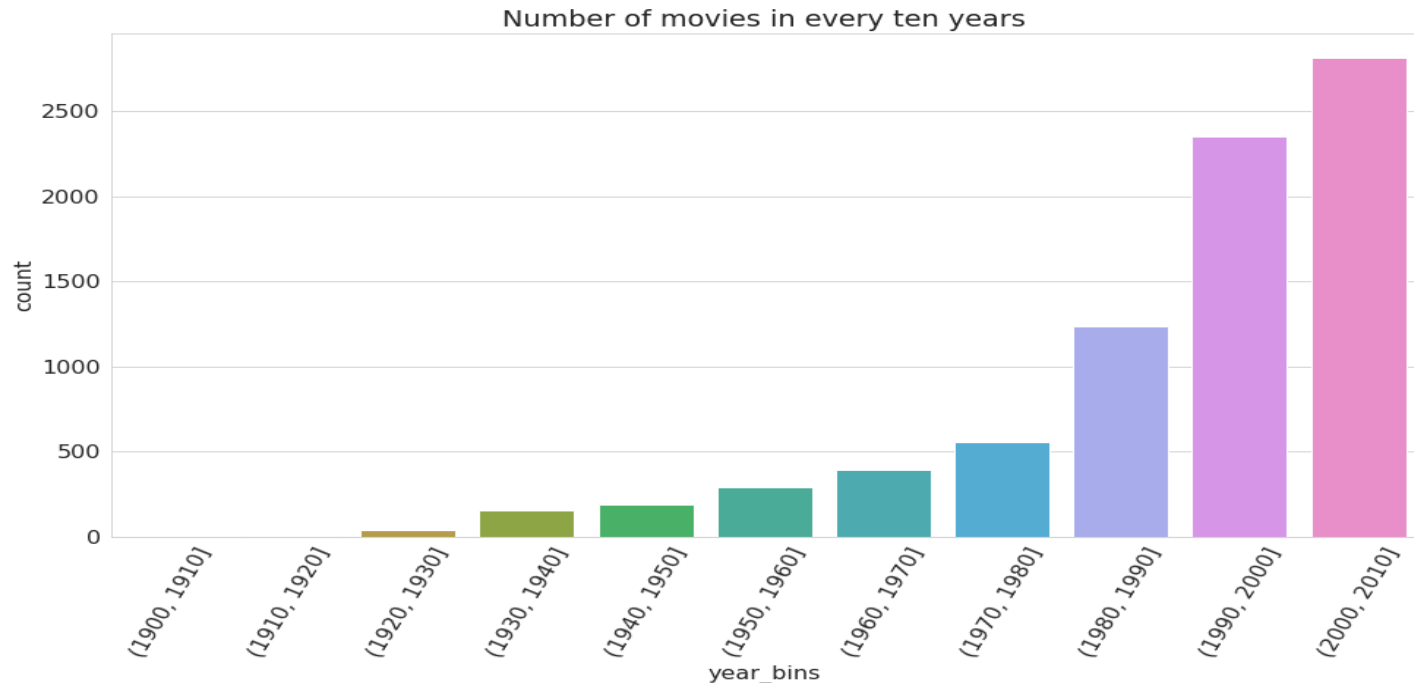
Data Understanding

- The data used has been sourced from MovieLens dataset from the GroupLens research lab at the University of Minnesota.
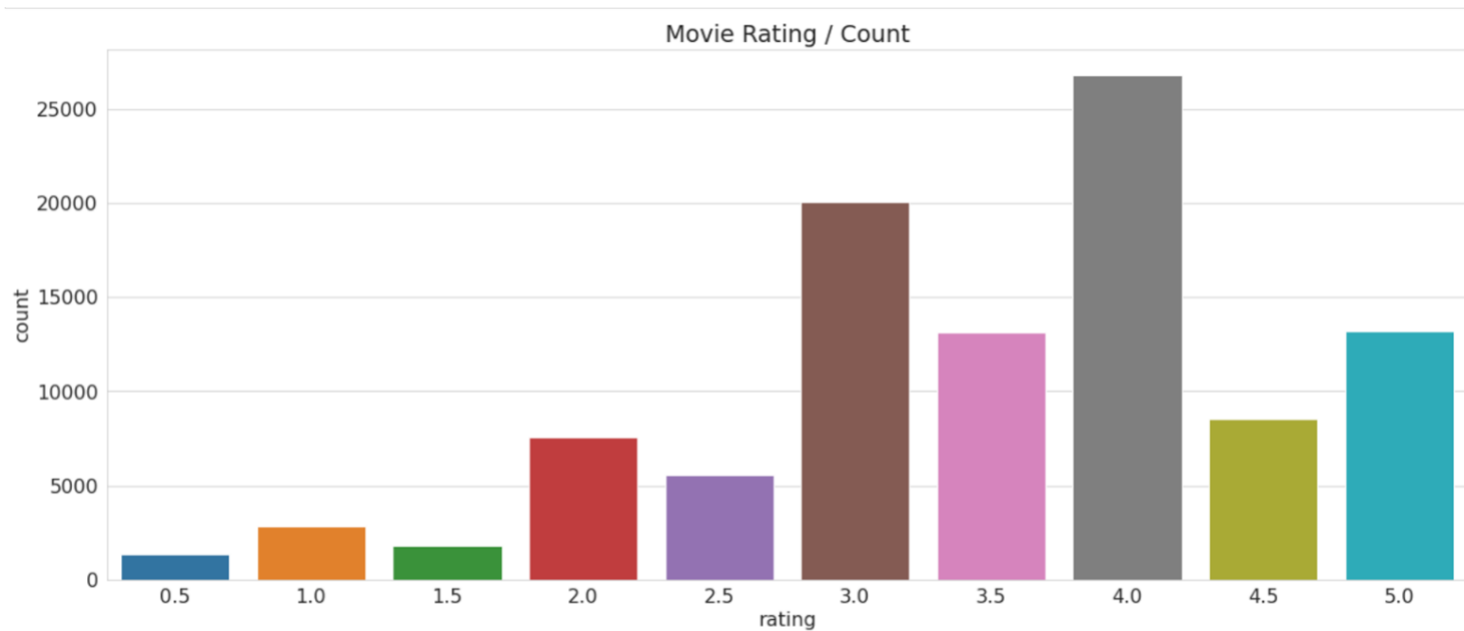- It contains 100836 ratings and 3683 tag applications across 9742 movies. These data were created by 610 users.

610
users

9724
movies

100,836 total
movies rated

Key Findings

Number of movies per decade

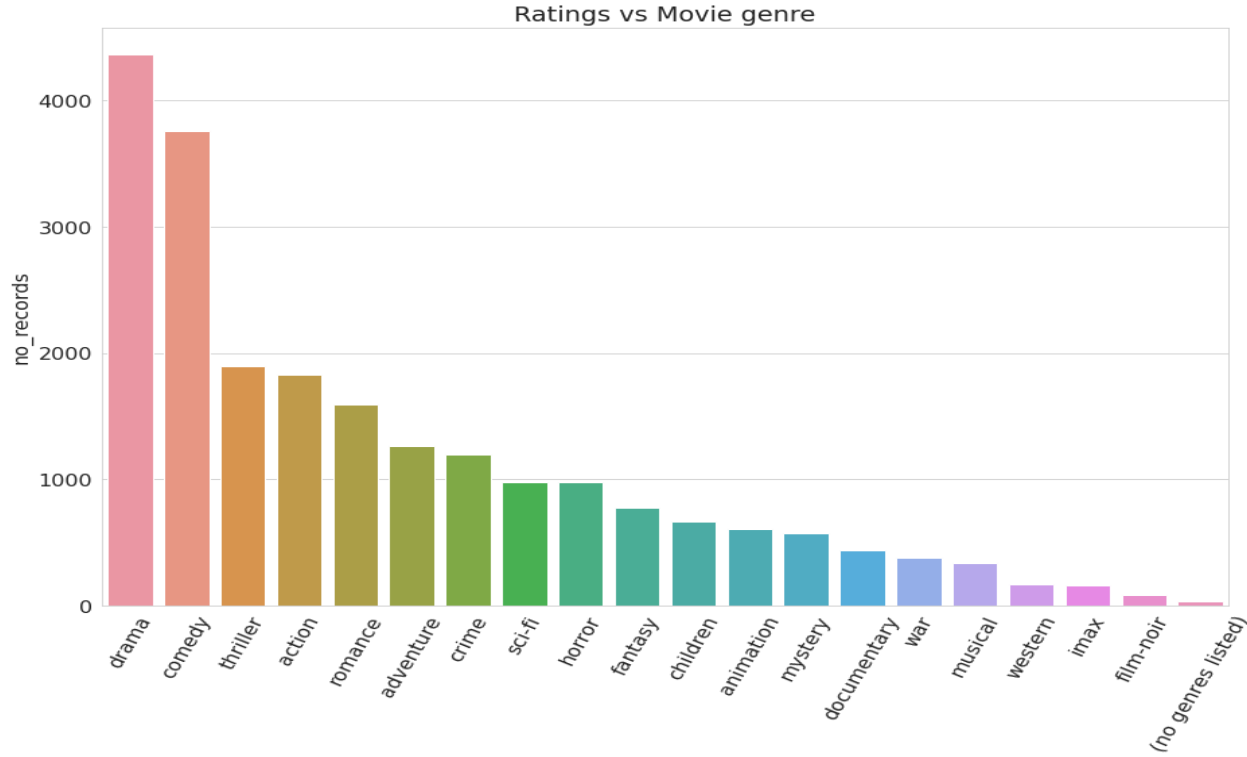Number of movies in every ten years

From the graph above, the number of movies produced increases over the years. the highest number of movies produced was between 2000 and 2010.
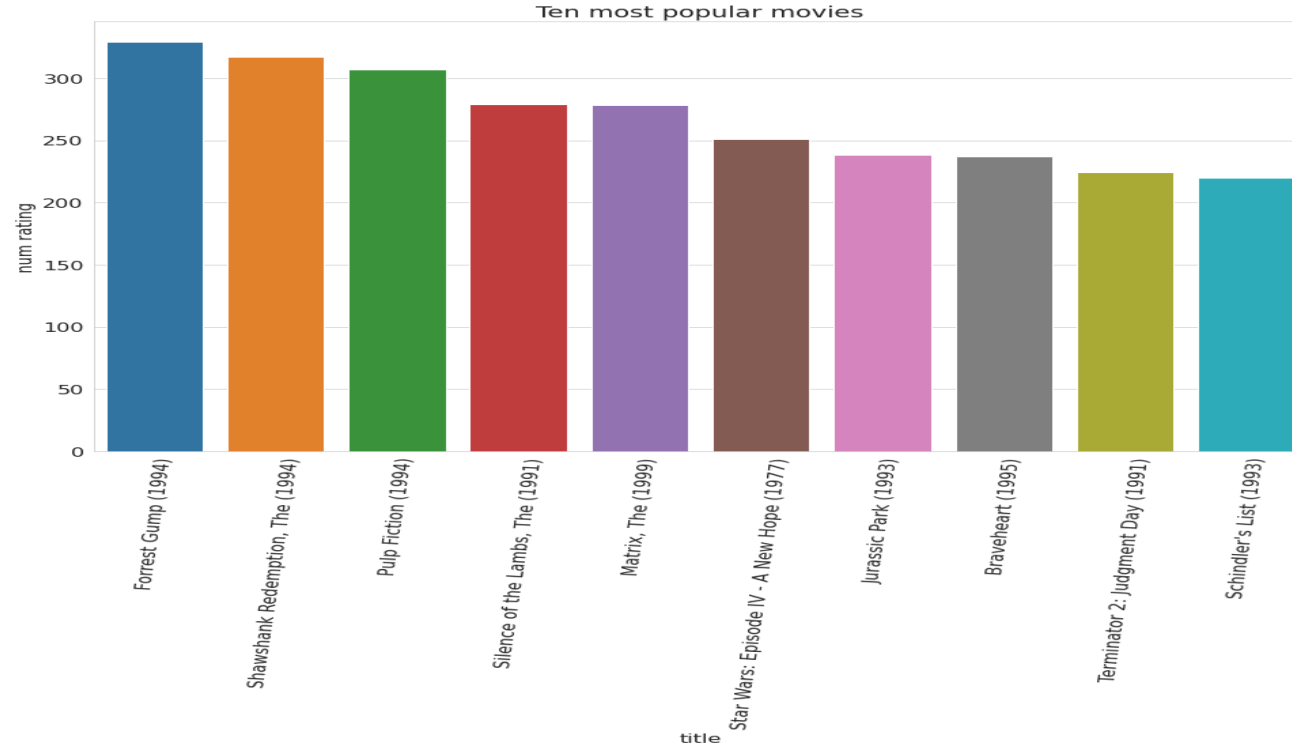
Movie Ratings

Movie Rating / Count

Most movies were rated at 4

Total movies per genre

Ratings vs Movie genre

Drama was the most frequent genre followed by comedy and the least frequent was flim-noir.
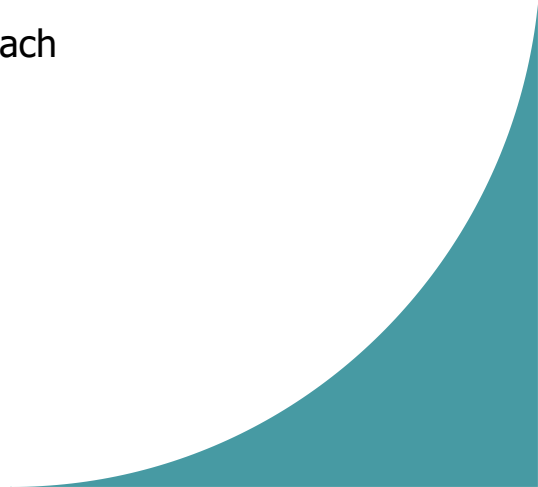
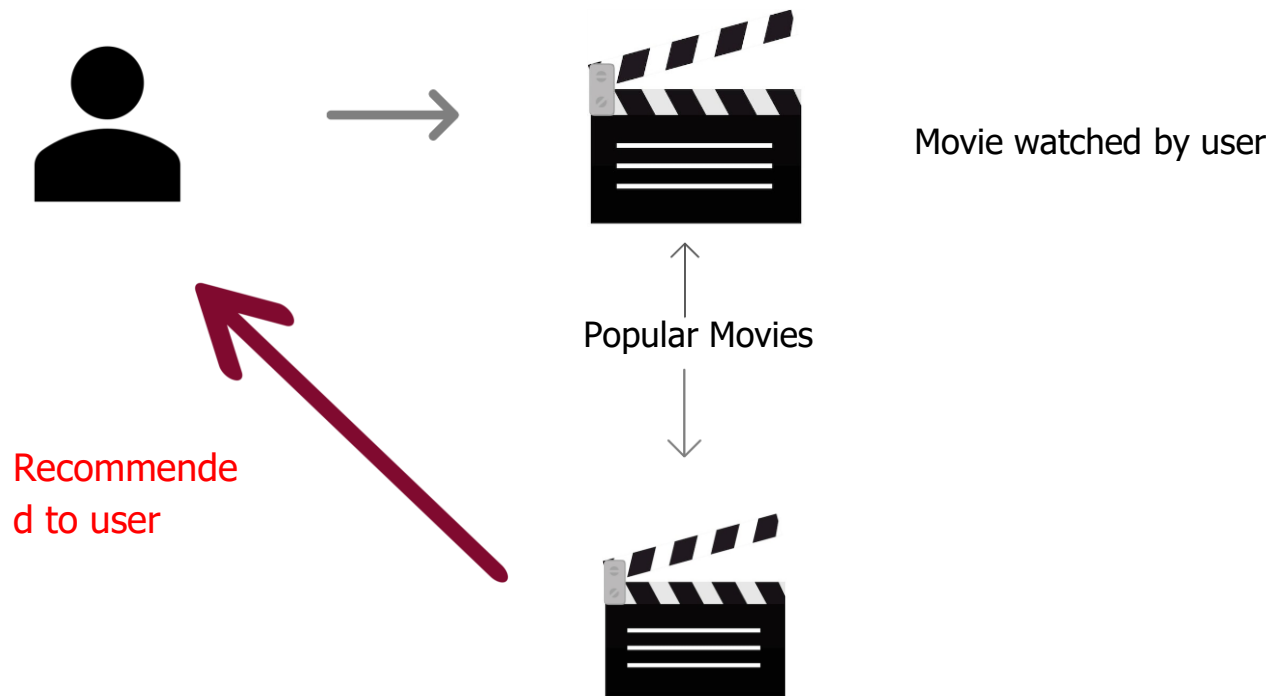# Ten most popular movies

Ten most popular movies

The most popular movie from the above plot is Forrest Gump(1994) with 329 ratings .
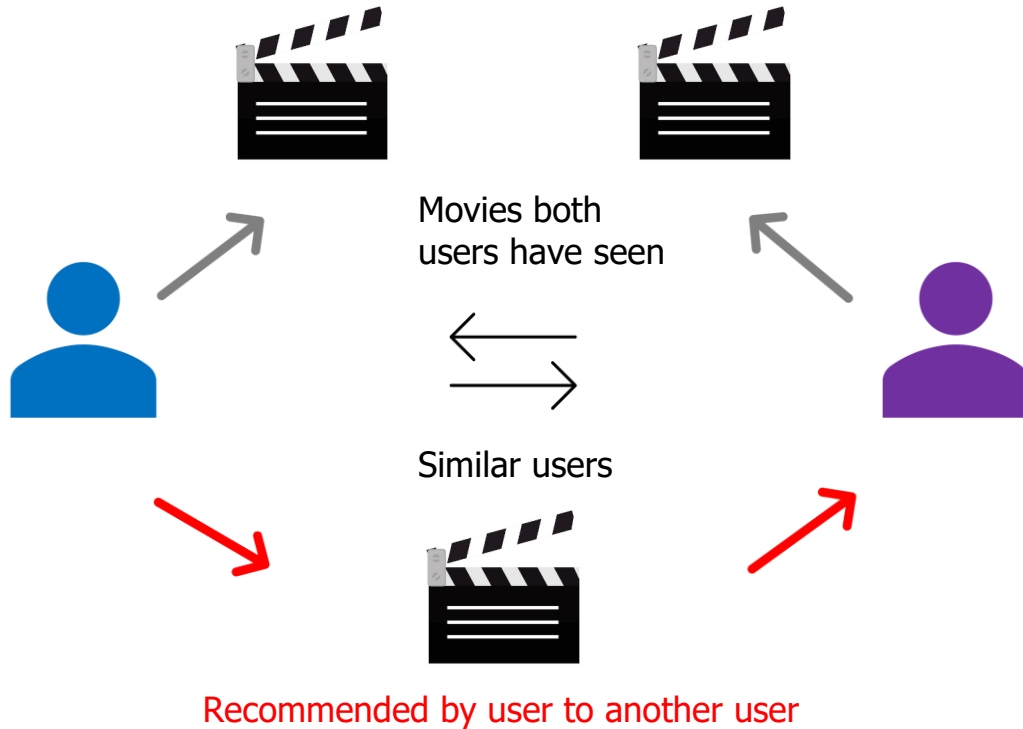
Approach

The four main approaches we used were

- Naive approach – Recommendation for a new user

- Content based – Recommendation based on movie characteristics

- Collaborative based – Similar users will like similar movie

- Hybrid based – Combination of Naïve approach and collaborative approach

Naive Approach

Movie watched by user

Popular Movies

Recommende
d to user

Collaborative Filtering

Movies both users have seen

Similar users

Recommended by user to another user

Results

```
movie_recommender()
```

movieId	title	genres	mean rating	num rating
318	Shawshank Redemption, The (1994)	[crime, drama]	4.429022	317.0
2959	Fight Club (1999)	[action, crime, drama, thriller]	4.272936	218.0
50	Usual Suspects, The (1995)	[crime, mystery, thriller]	4.237745	204.0
260	Star Wars: Episode IV - A New Hope (1977)	[action, adventure, sci-fi]	4.231076	251.0
527	Schindler's List (1993)	[drama, war]	4.225000	220.0
1196	Star Wars: Episode V - The Empire Strikes Back...	[action, adventure, sci-fi]	4.215640	211.0
296	Pulp Fiction (1994)	[comedy, crime, drama, thriller]	4.197068	307.0
2571	Matrix, The (1999)	[action, sci-fi, thriller]	4.192446	278.0
356	Forrest Gump (1994)	[comedy, drama, romance, war]	4.164134	329.0
593	Silence of the Lambs, The (1991)	[crime, horror, thriller]	4.161290	279.0

```
hybrid_recommendation_engine(610, "action")
```

These are the recommendations for the users with the following filters
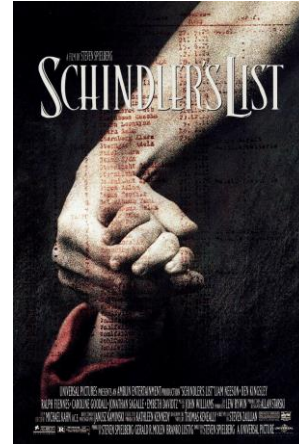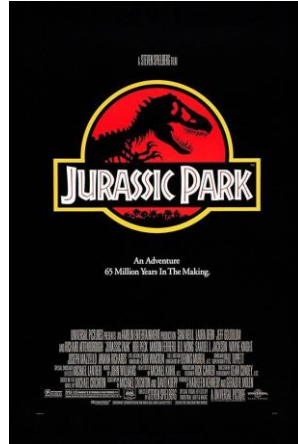User id: 610
Minimum number of ratings: 50
User's choice of genre: action

	movieId	Expected Rating	title	num rating
110	2826.0	3.1	Braveheart (1995)	237.0
1	3593.0	2.1	Toy Story (1995)	215.0
50	2167.0	3.5	Usual Suspects, The (1995)	204.0
47	34405.0	4.1	Seven (a.k.a. Se7en) (1995)	203.0
150	1387.0	4.1	Apollo 13 (1995)	201.0

Conclusion

- The recommender system works based on previous user patterns.

Recommendations

- When a user is new , recommend movies based on their popularity.

- For a current user, use their previous information on movie ratings and genres preferred to tailor recommendations.

THANK YOU!