Unveiling Film Tastes: A Personalized Movie Journey through Smart Recommendations

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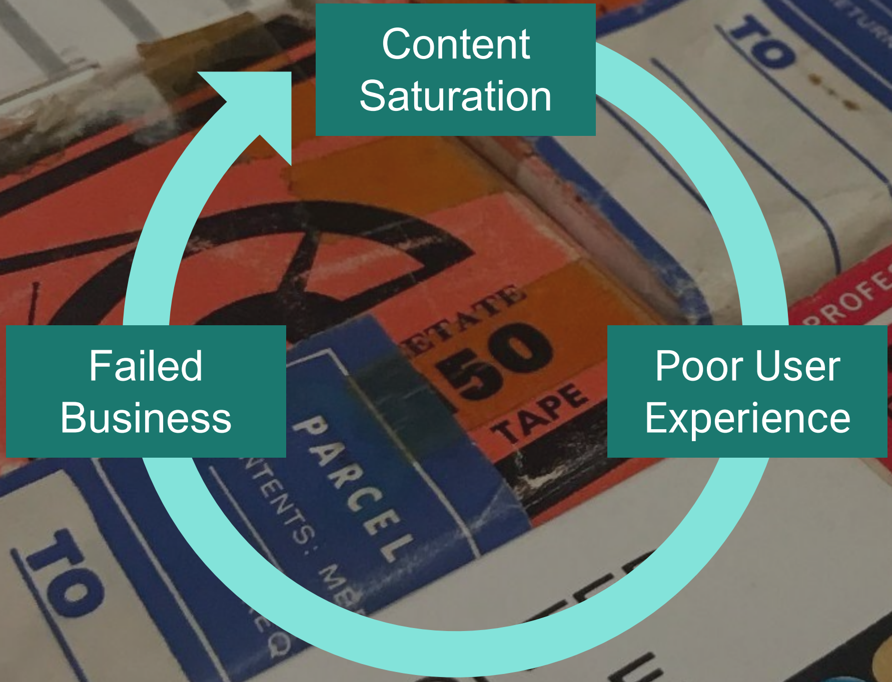
Optimizing Viewer Engagement through Personalized Movie Recommendations

Business Landscape Today



Project Business Objectives

- Strategic personalization for viewer loyalty.
- Turning user choices into enhanced experiences.
- Data-Driven solutions for business Success

Dataset Overview

Data Source: Movielens

Ratings Dataset: userId, movieId, rating,timestamp

Movie Dataset: title, genres.

Tags Dataset: userId,movieId, tag

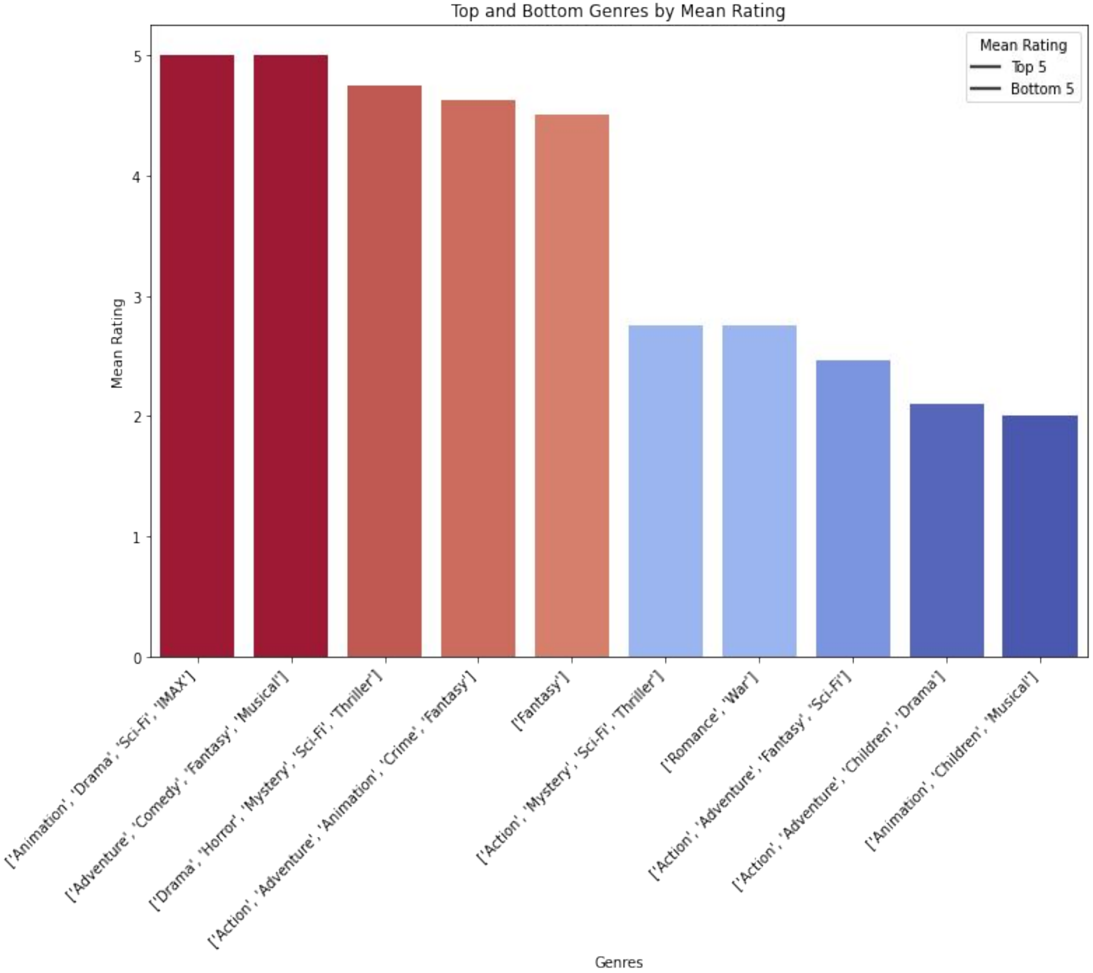
Business Relevance of the Data

- Explore user view through ratings.
- Genre Insights for personalized recommendations.
- User-Generated Tags to get user perceptions

Data Analysis Process Overview

Data Collection, cleaning & Preprocessing	Exploratory Data Analysis	Feature Engineering	Machine Learning & Evaluation	Insights
Acquiring datasets from Movielens. Handling of missing data for accurate insights.	Uncovering patterns and user preferences through visualizations Identifying trends to inform strategic decisions	Creating new features to refine dataset relevance Aligning data with recommendation system requirements	Implementing advanced machine learning models for recommendation system development. Applying metrics to assess model performance.	Deriving actionable insights from the analysis to inform strategic decisions.

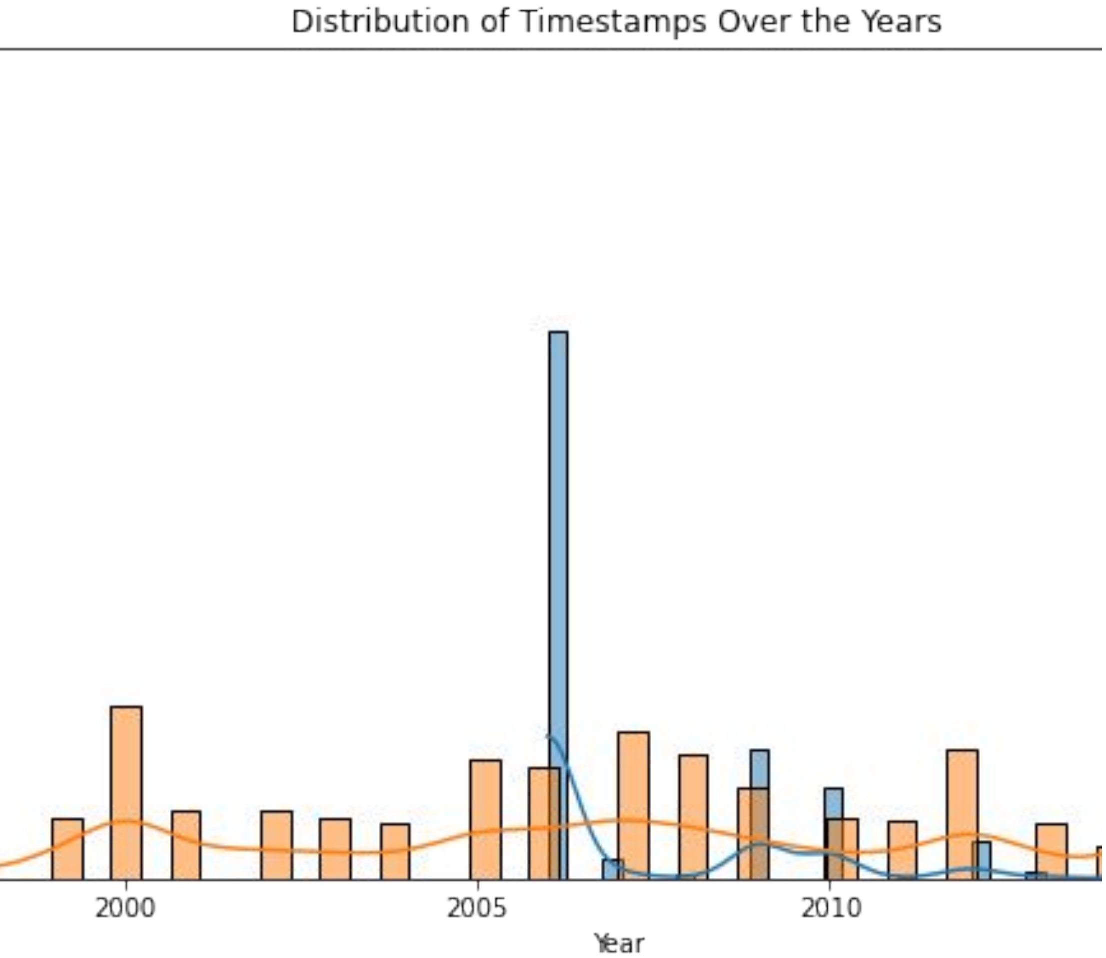
Exploratory Data Analysis [EDA]



Genres based on mean ratings.
Top Genres: Animation, Drama, Sci-Fi, IMAX, Adventure, Comedy, Fantasy, Musical have ratings of 5.0.

Bottom Genres
Action, Mystery, Thriller, Romance, War have lower ratings around 2.7.

Exploratory Data Analysis [EDA]



Temporal Analysis of ratings and tags

Fluctuations in the trend of ratings over the years

Consistent rating over the years

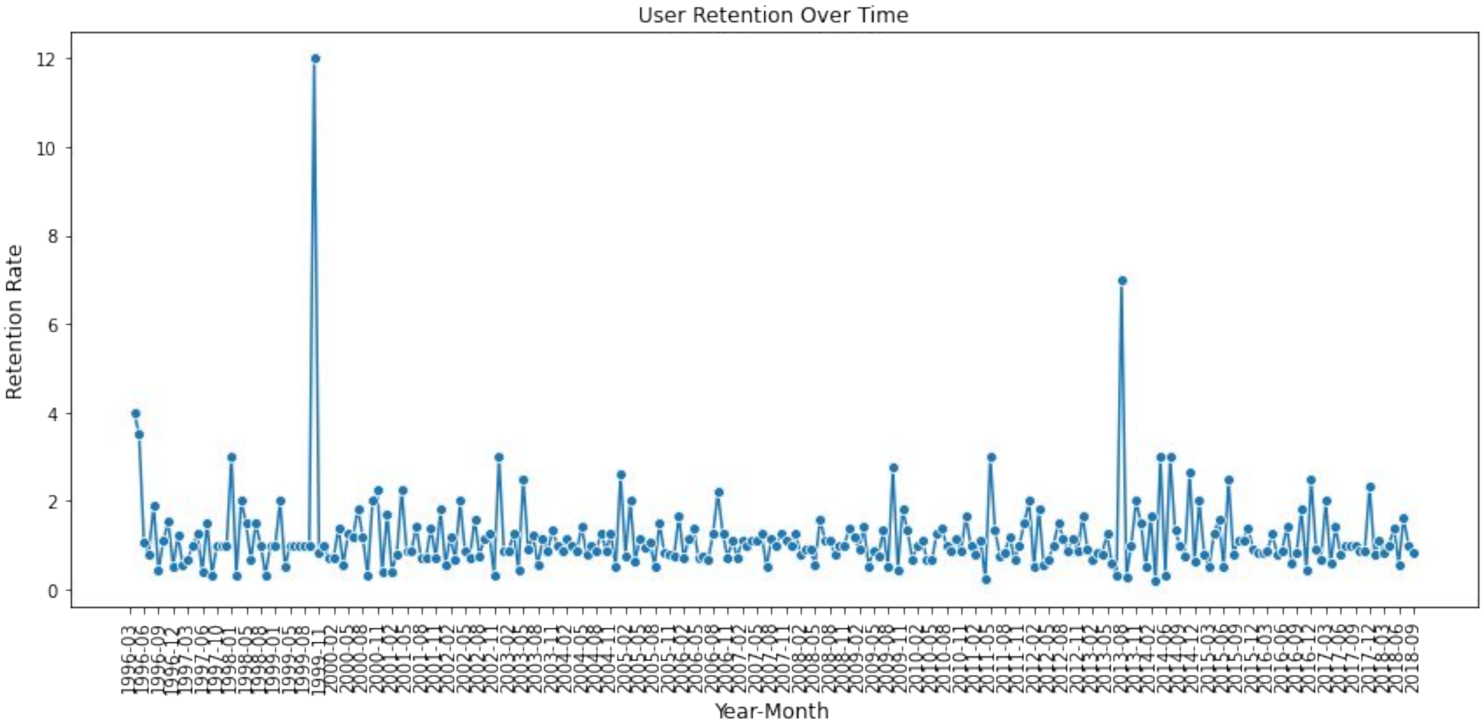
Tags originated around 2006, with an initial surge of 50,000.

Decline in tag activity

Resurgence starting from 2015.

The counts continue to increase, reaching around 70,000 in 2017

Feature Engineering



User Retention over time

Fluctuations in the platform's ability to retain users

Peak around August to November 1999 and August to November 2013 indicate critical periods of user engagement

Machine Learning Modeling and Evaluation Metrics

Item-item collaborative filtering

Recommend movies to a user based on the preferences of other users who liked the same movies.

The RMSE 0.7924

User-Item Collaborative Filtering

Recommend movies based on the preferences of similar users

The RMSE 0.7389

Neural Collaborative Filtering (NCF)

Showcases deep learning prowess, and meticulous tuning

Test loss of 0.54

Conclusions and Insights

- The recommendation system has achieved a 74% accuracy in aligning user preferences with movie recommendations.

- An accurate recommendation system contributes significantly to user experience and the platform's success

- Getting deeper analysis of user engagement metrics in response to personalized recommendations.

Thank You

Any Questions,
comments and Insights

Are highly valued.