Movie Recommendation System using Deep Learning

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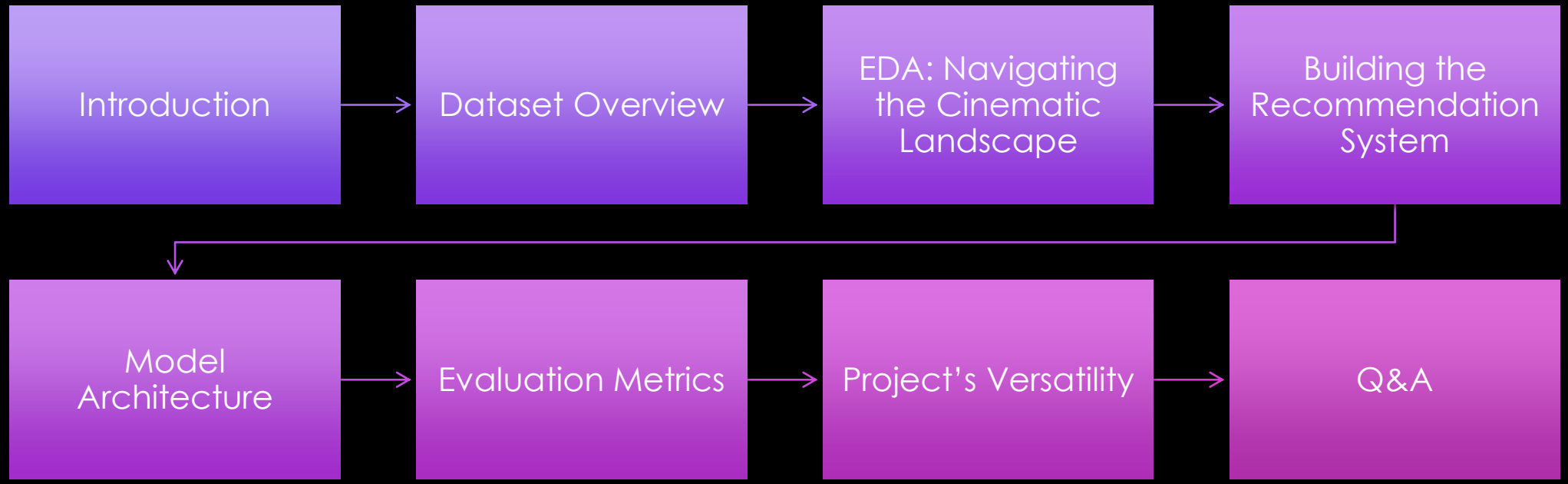
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Introduction

THE GOAL OF THIS PROJECT IS TO BUILD A MOVIE RECOMMENDATION SYSTEM WHERE USERS WILL BE RECOMMENDED MOVIES BASED ON THEIR VIEWING HISTORY

EXPLORE THE DATA TO DERIVE TRENDS ABOUT MOVIES, RATINGS AND THE USERS

IMPROVE USER ENGAGEMENT AND CONTENT RECOMMENDATIONS FOR ONLINE STREAMING PROVIDERS

LEVERAGE DEEP LEARNING FOR ROBUST AND SCALABLE RECOMMENDATIONS, APPLICABLE BEYOND THE ENTERTAINMENT INDUSTRY.

Our Data

20 MILLION RATINGS

465,000 TAG APPLICATIONS

27,000 MOVIES FROM 1894 TO 2015

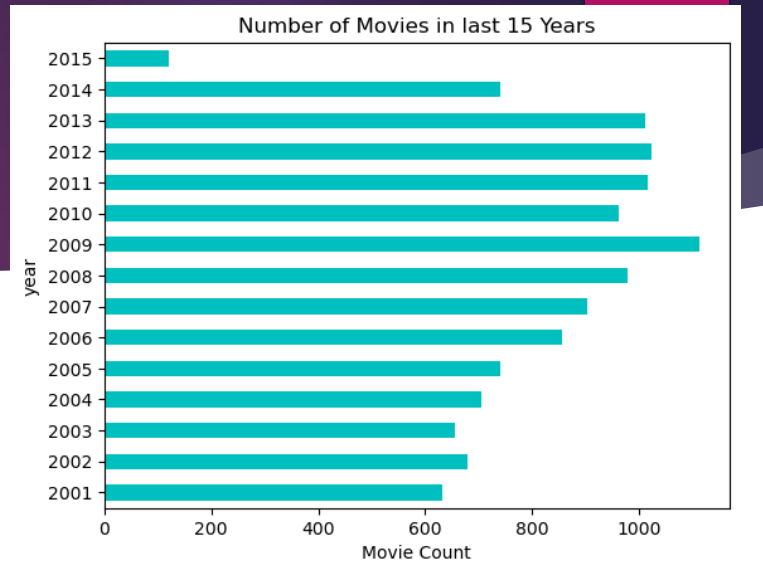
138,000 UNIQUE USERS APPROX.

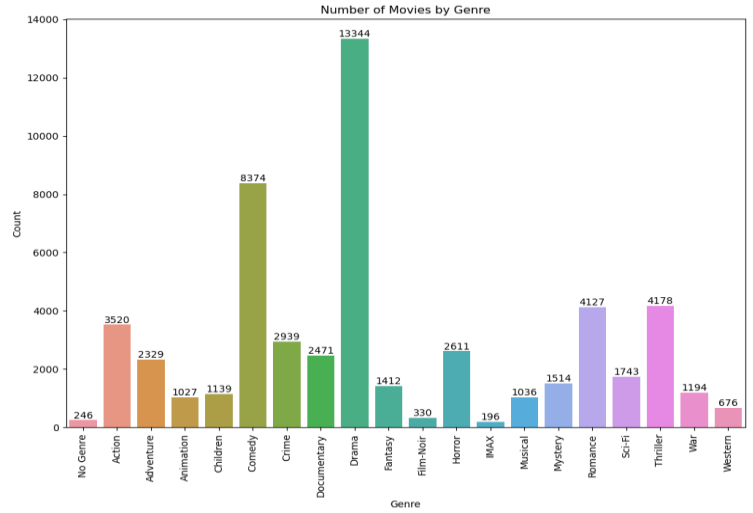
EDA: Navigating the Cinematic Landscape

We explored the Overall & last 15 years' of Movie Release trends

We uncovered the prevailing genre that has consistently remained the most popular among movies across various years.

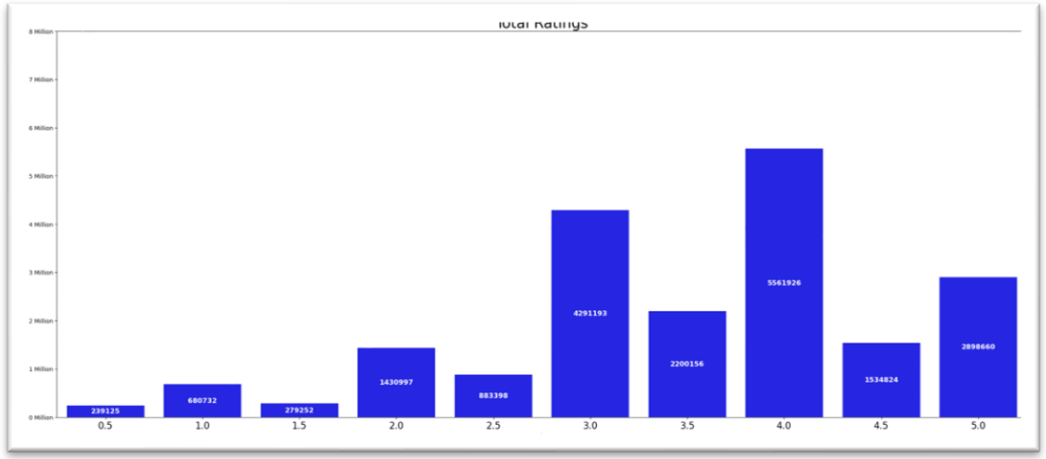
Drama *seems the most Favorite among Users!!*



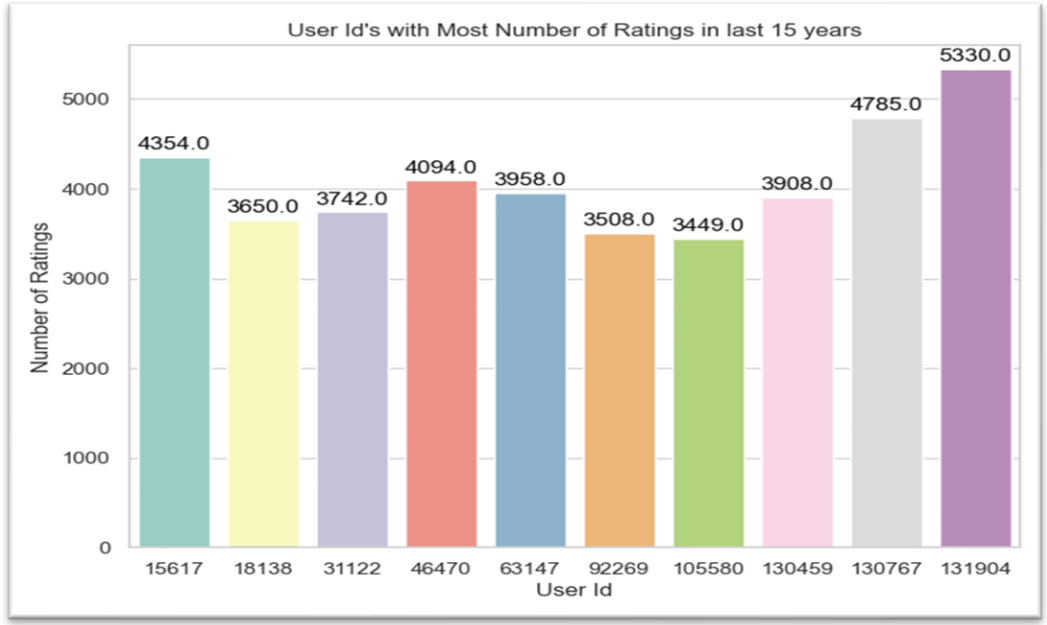


EDA: Navigating the Cinematic Landscape (Cont.)

What is the Most Common Rating?

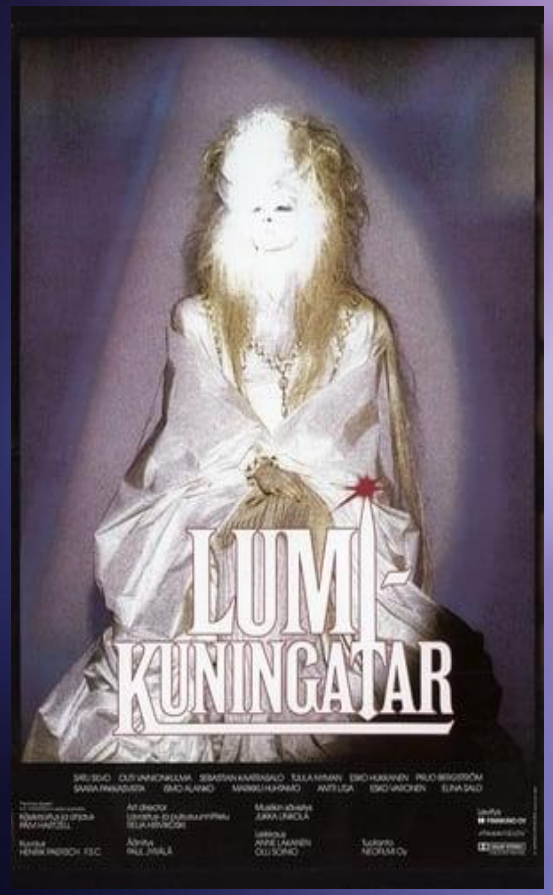


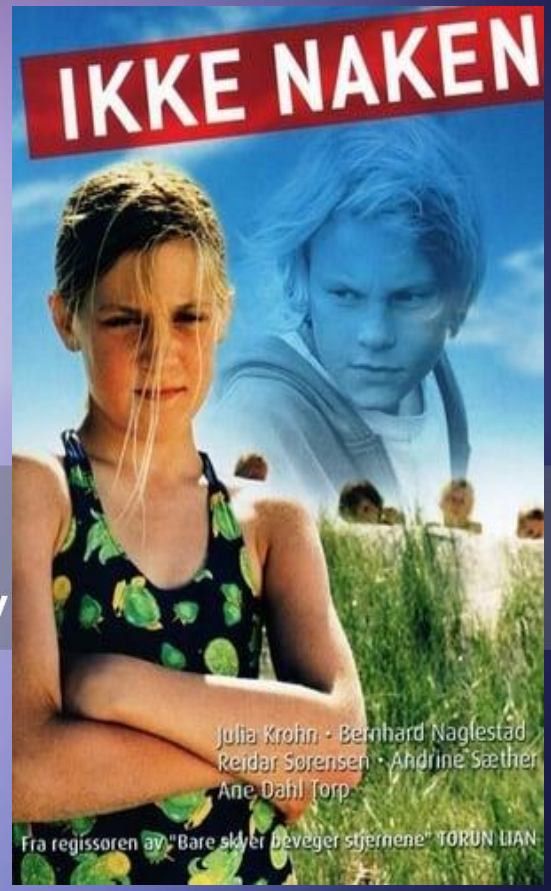
Which User rated the most?



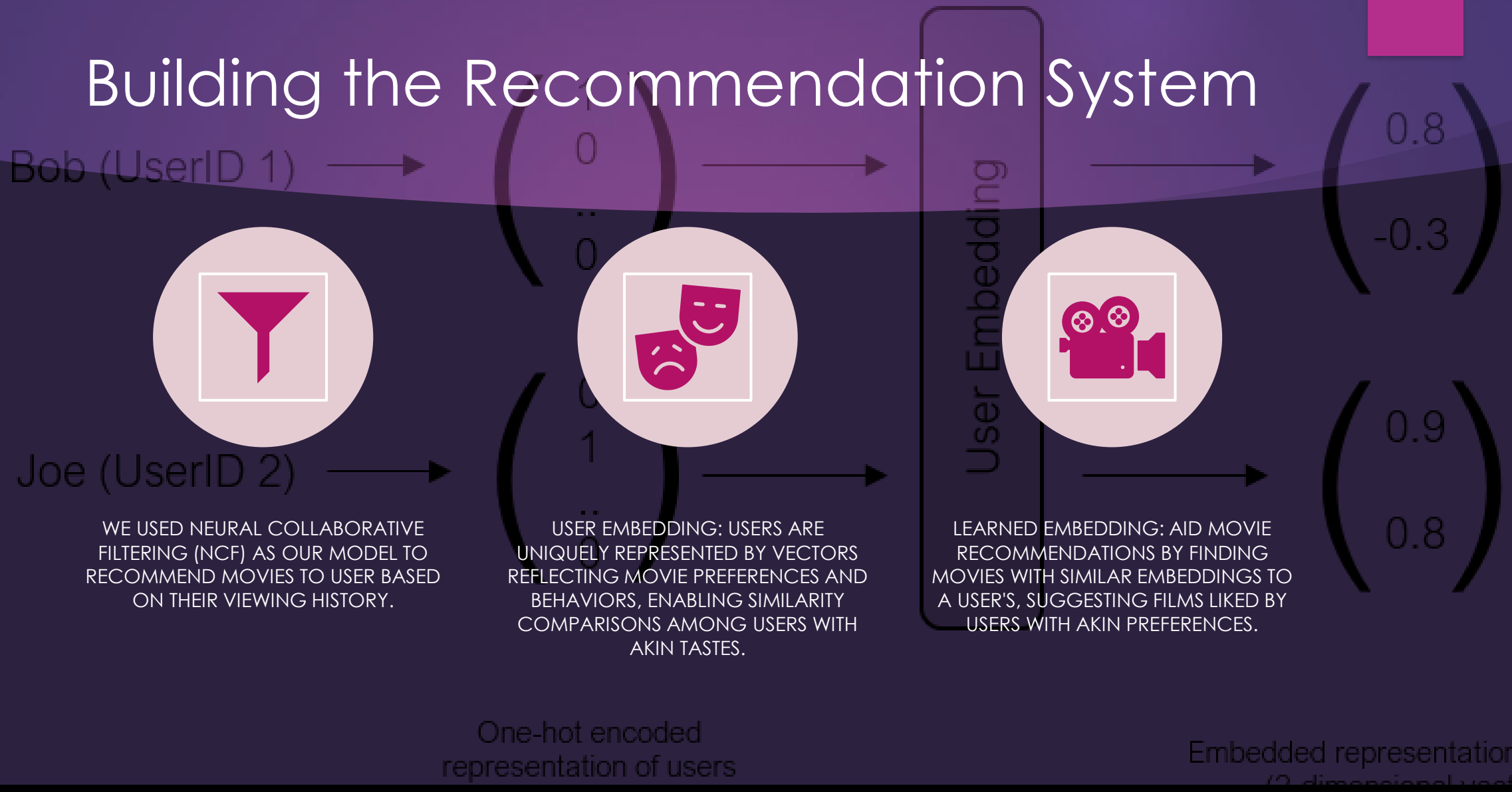
EDA: Navigating the Cinematic Landscape (Cont.)

Top Rated Movies of All Time:-





Building the Recommendation System



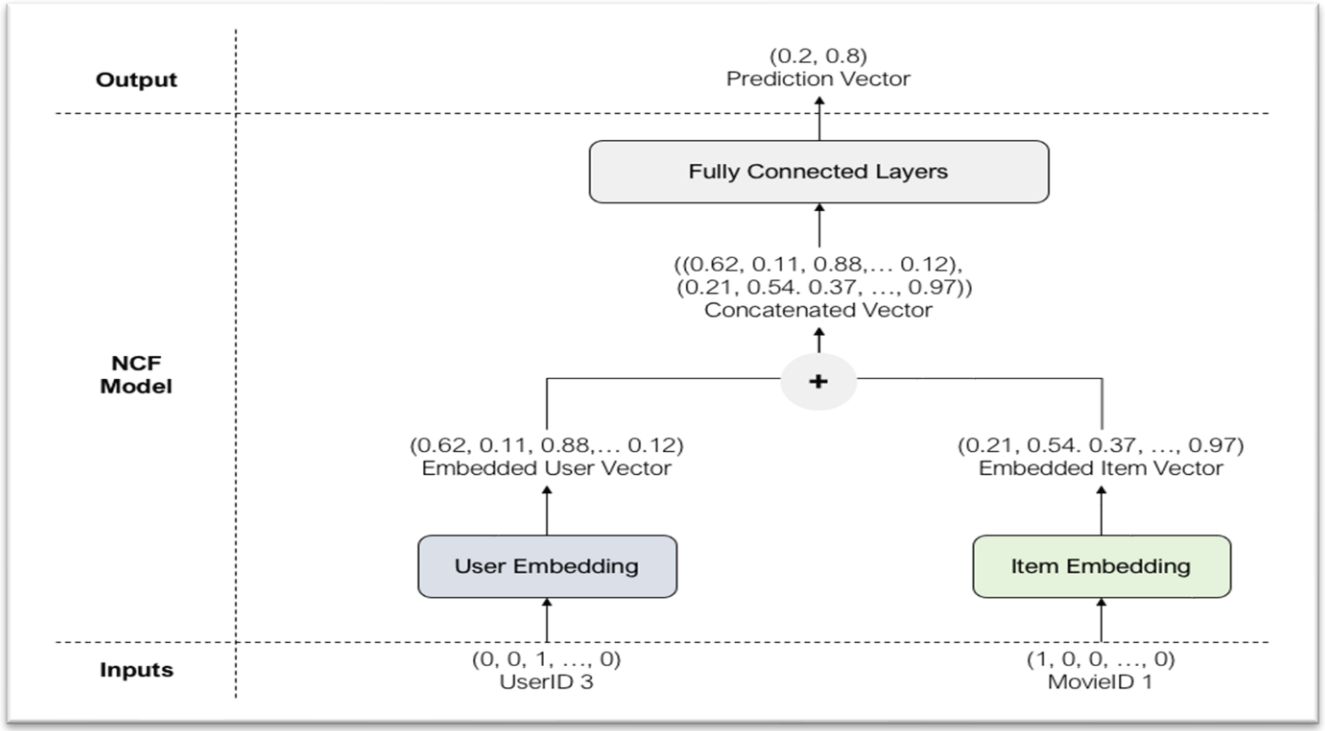
WE USED NEURAL COLLABORATIVE FILTERING (NCF) AS OUR MODEL TO RECOMMEND MOVIES TO USER BASED ON THEIR VIEWING HISTORY.

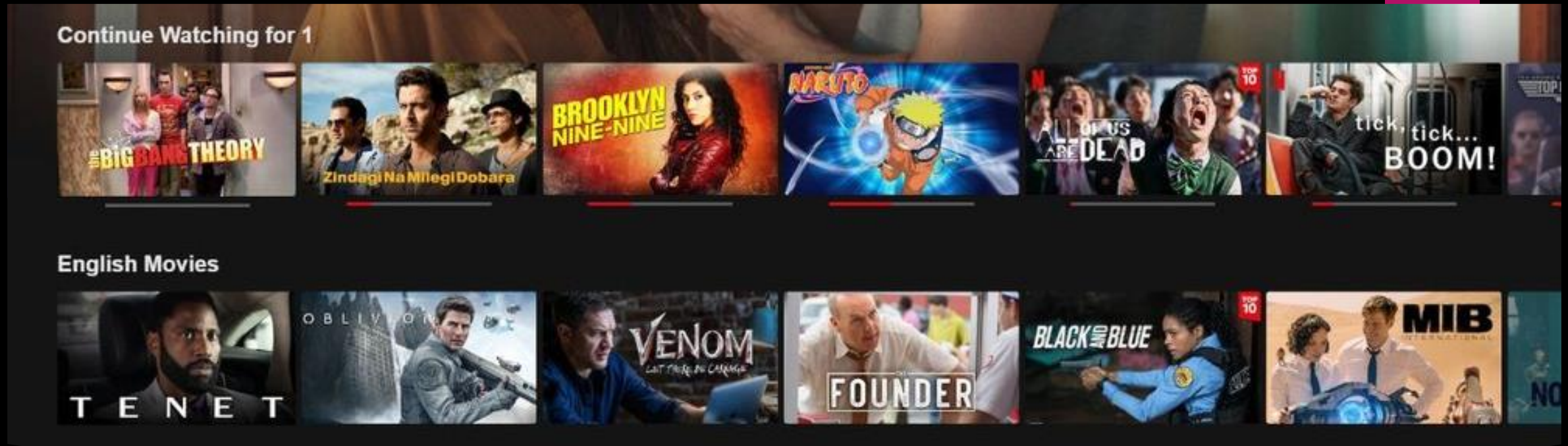
USER EMBEDDING: USERS ARE UNIQUELY REPRESENTED BY VECTORS REFLECTING MOVIE PREFERENCES AND BEHAVIORS, ENABLING SIMILARITY COMPARISONS AMONG USERS WITH AKIN TASTES.

LEARNED EMBEDDING: AID MOVIE RECOMMENDATIONS BY FINDING MOVIES WITH SIMILAR EMBEDDINGS TO A USER'S, SUGGESTING FILMS LIKED BY USERS WITH AKIN PREFERENCES.

Model Architecture

- The model used user and item IDs as input, embedded them, passed through fully connected layers, and predicted interactions using binary cross-entropy loss.
- Configured for binary classification, predicting user-movie interactions.
- Model used Adam optimizer and Data Loader for Training





Model Evaluation

- We used Hit Ratio @ 10 score as our Evaluation Metrics
- It measures the percentage of recommendations within the top 10 that match the user's actual choices, assessing recommendation system accuracy
- Our model achieved an impressive 80% Hit Ratio, indicating that 80% of its recommendations ranked among the user's top 10 choices.

Project's Versatility: Beyond Movie Recommendations

The Project extends beyond movie recommendations, with applications in diverse sectors.

Enables online retailers like Amazon, Walmart, and eBay to suggest products based on purchase history.

Benefits digital platforms like Facebook and YouTube for personalized ad and video recommendations.

Enhances content discovery on e-learning platforms.

Can Optimize music and playlist recommendations in the music streaming industry.

Questions?

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THANK
YOU