



# Runway Recommender

Predicting User Preferences

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*Cyarina Luna*

01



# Summary

- Created generalized and personalized recommendations
- Applied natural language processing and vectorized text reviews
- Reduced the mean absolute error to 0.5 using SVD algorithm

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RETAIL PRODUCT  
RECOMMENDER

# Business Problem



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## UNDERSTANDING USER

Provide a model for inference and data analysis to understand users

## PREDICTING PREFERENCES

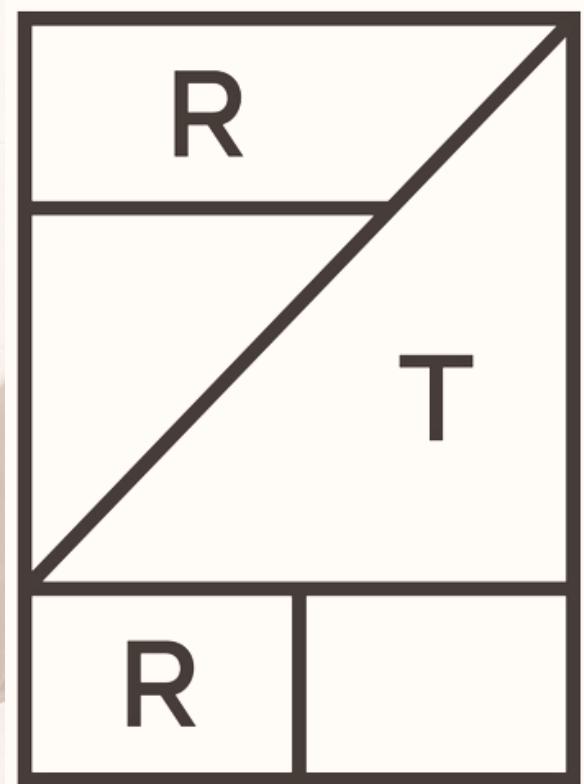
Develop a machine learning model that predicts user preferences

## RECOMMENDING ITEM

Create a recommender engine to expose users to relevant products



# Data & METHODOLOGY



## RENT THE RUNWAY

User data and item features  
Ratings and text reviews

## RECOMMENDER SYSTEMS

Content-based recommendations  
Collaborative filtering systems

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## USER PROFILE

Normally distributed range of age and body measurements with median age around 30



## DATA

Returning customers make up almost 1/3 of the user base and half of them rented twice

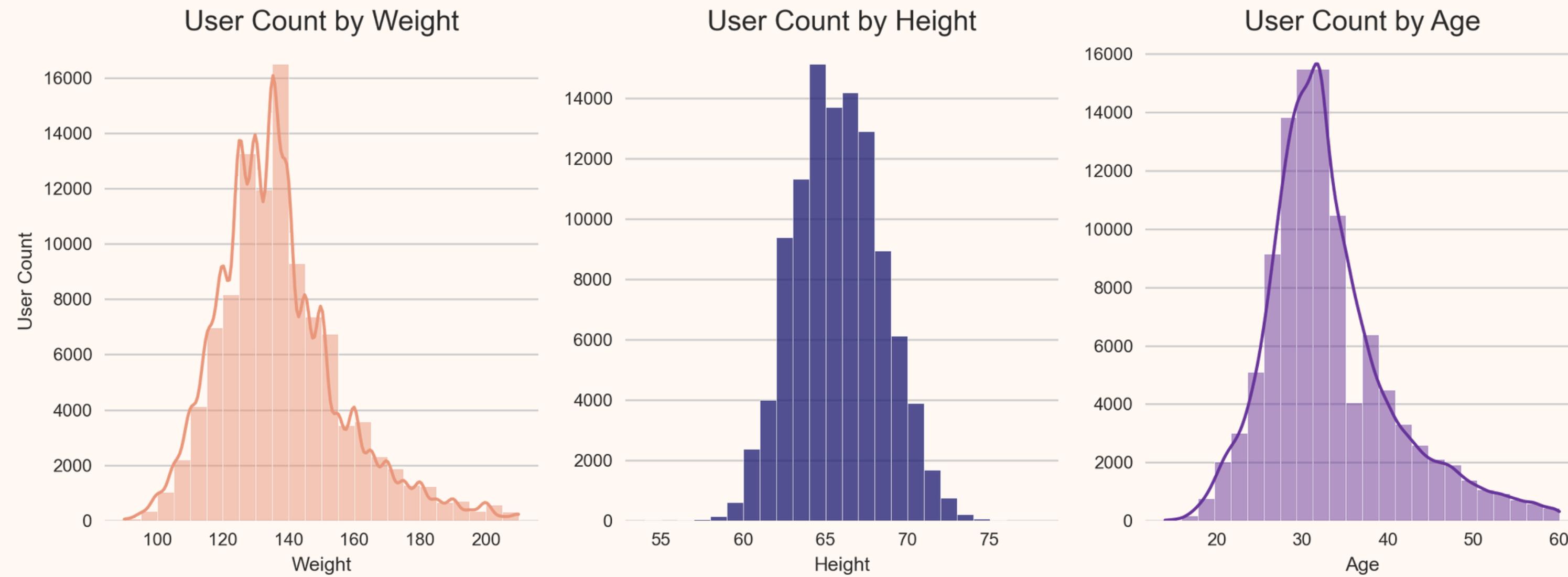


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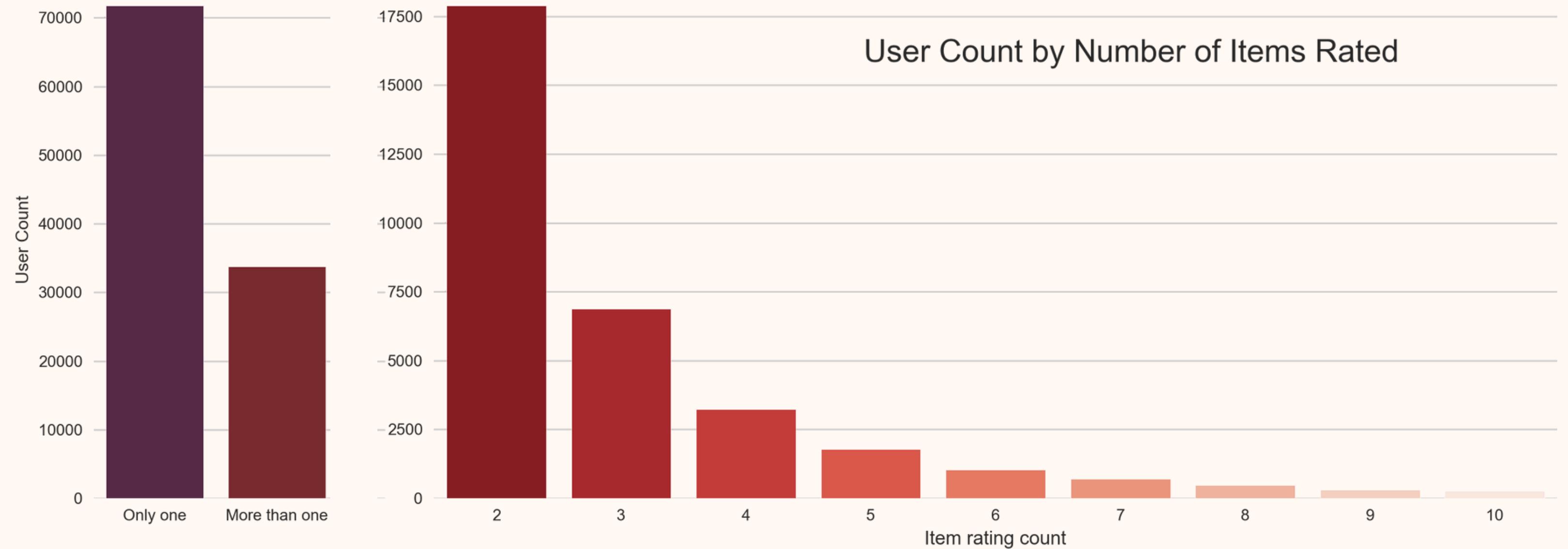


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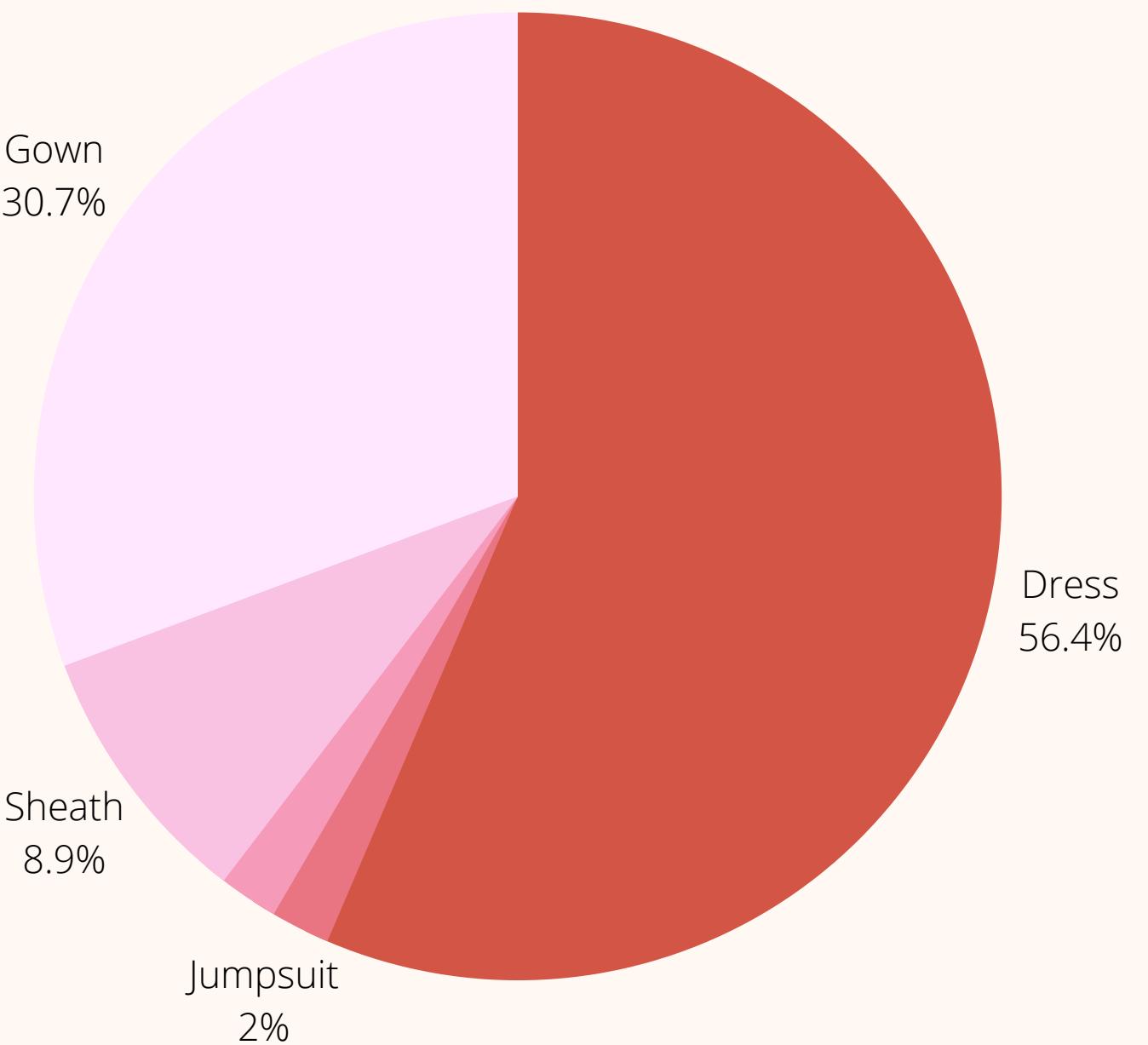
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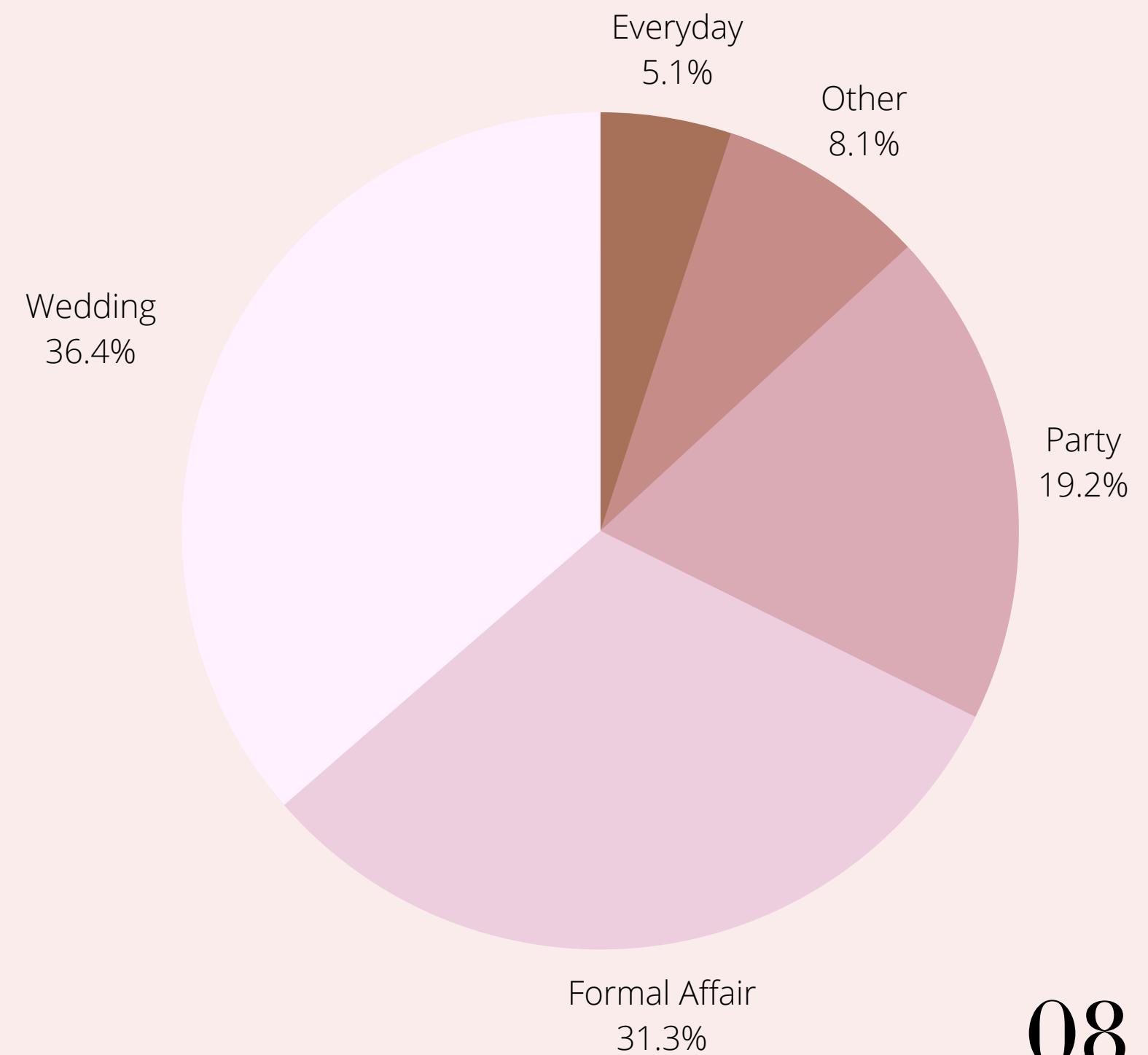
# Data Distribution

## TOP CATEGORIES



## TOP EVENTS

(reasons for rent)



# Data Modeling

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Highest Rated  
Individual Items



Highest Rated  
Top Categories

Content-Based  
Filtering

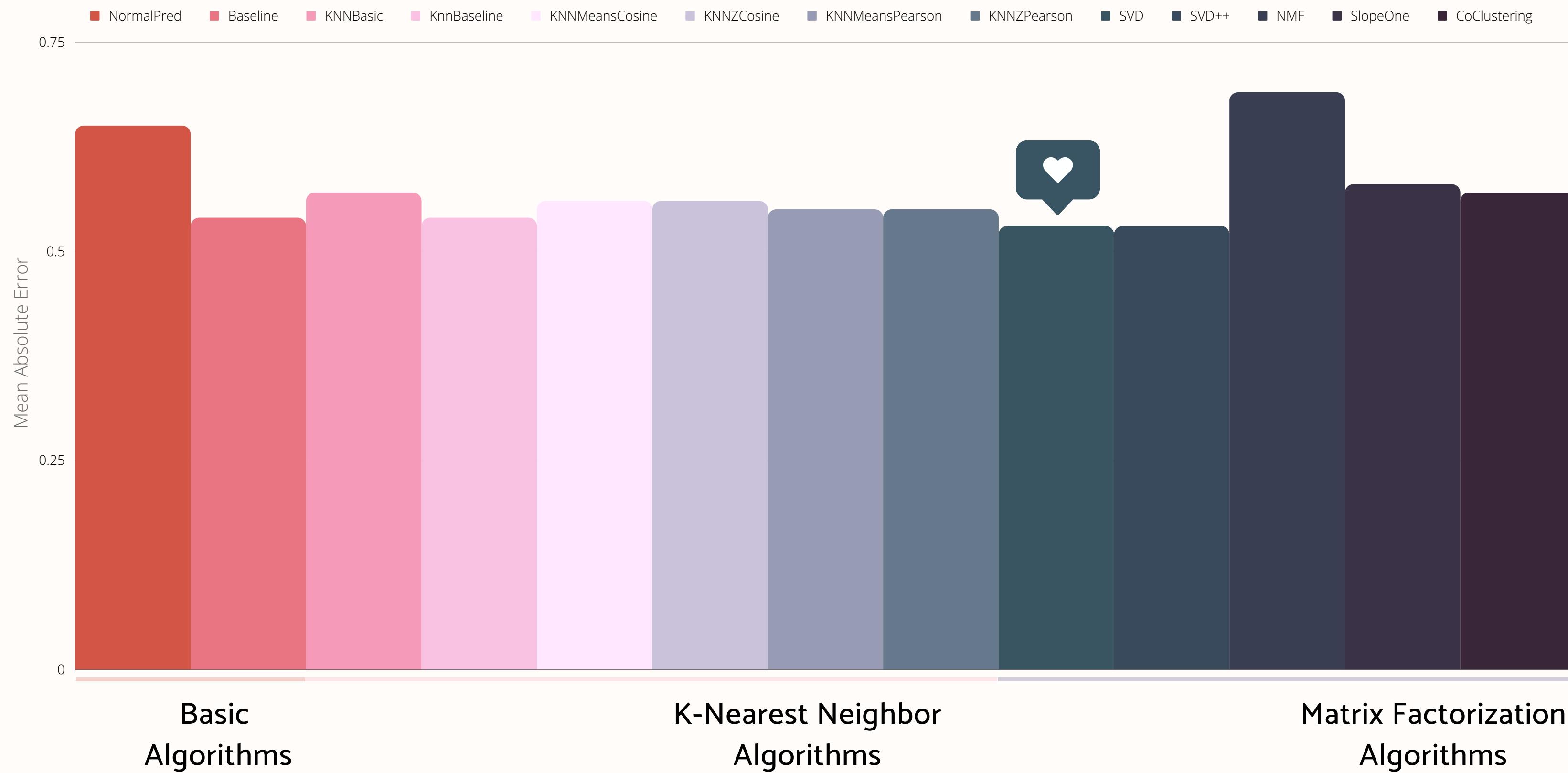
Text-Based  
Recommendation

Collaborative  
Filtering



# Model Performance

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# Popularity Recommendations

No. 1

Rating Count

**284**

No. 2

Rating Count

**190**

Average Rating

**4.89**

Average Rating

**4.86**

Weighted Rating

**4.82**

Weighted Rating

**4.77**

No. 3

Rating Count

**308**

No. 4

Rating Count

**143**

Average Rating

**4.82**

Average Rating

**4.88**

Weighted Rating

**4.77**

Weighted Rating

**4.76**

# Content Based Recruiters

## SIMILARITY MATRIX

ITEM ID	123373	123793	124204	124553
123373	1.00	0.99	1.00	0.98
123793	0.99	1.00	0.99	0.96
124204	1.00	0.99	1.00	0.98
124553	0.98	0.96	0.98	1.00



# ■ Collaborative Filtering Systems

## MATRIX FACTORIZATION

	5.0		4.0		5.0	3.0
		4.0	5.0	5.0		4.0
	5.0			5.0		
	5.0	3.0			4.0	



# Results

- Singular Value Decomposition algorithm
- Attained lowest mean absolute error of 0.5
- Difference between the model predictions and actual ratings

# CZARINA LUNA

Feel free to contact me for any questions.

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