



Runway Recommender

Predicting User Preferences



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

02

RETAIL PRODUCT
RECOMMENDER

Business Problem



03

UNDERSTANDING USER

Provide a model for inference and data analysis to understand users

PREDICTING PREFERENCES

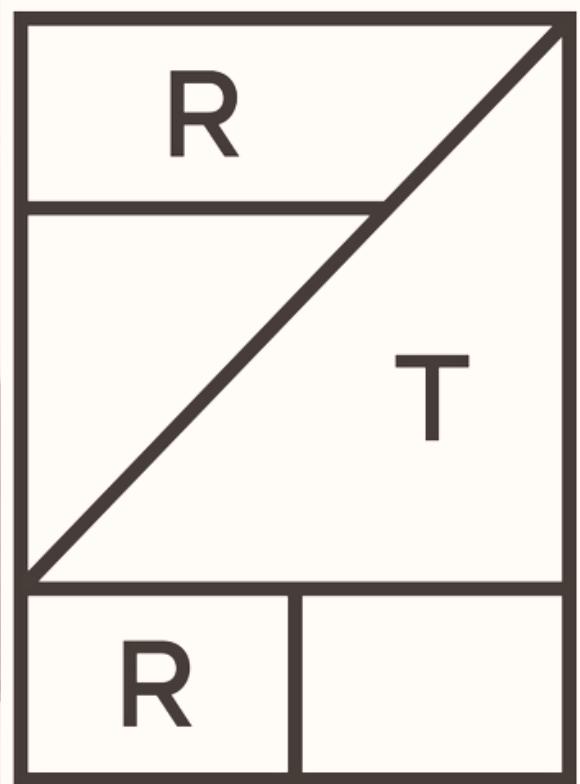
Develop a machine learning model that predicts user preferences

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

05

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

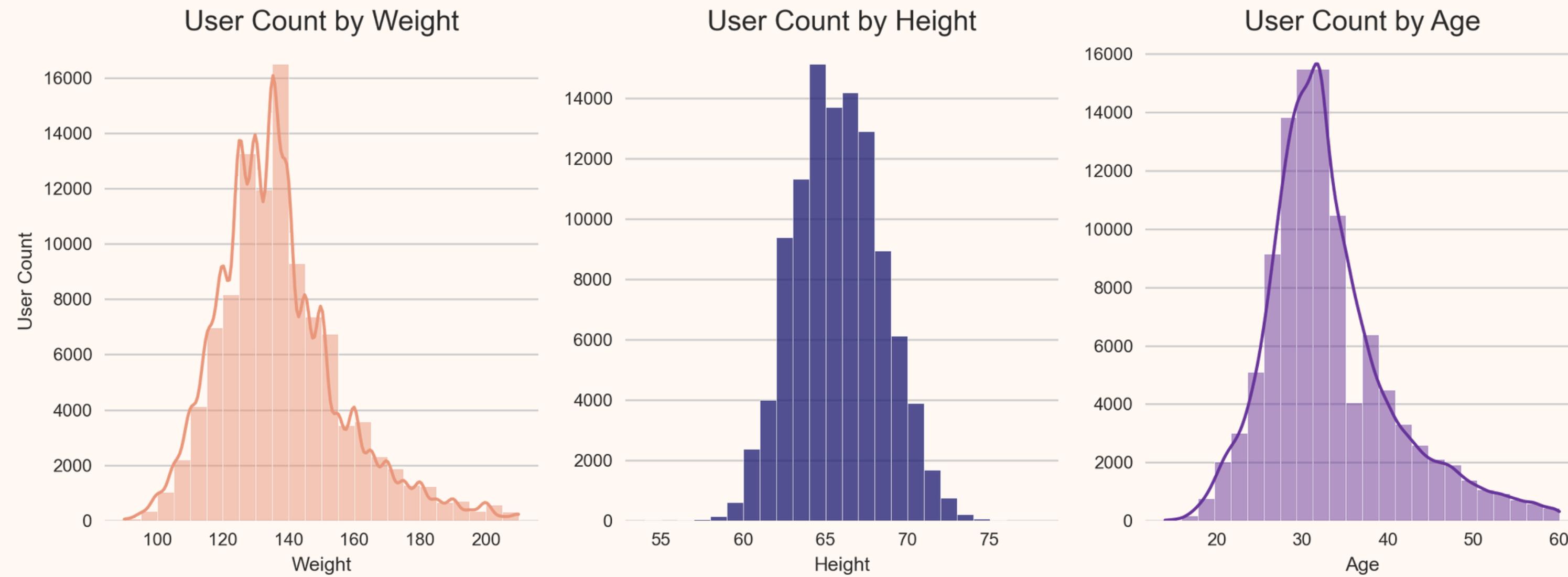


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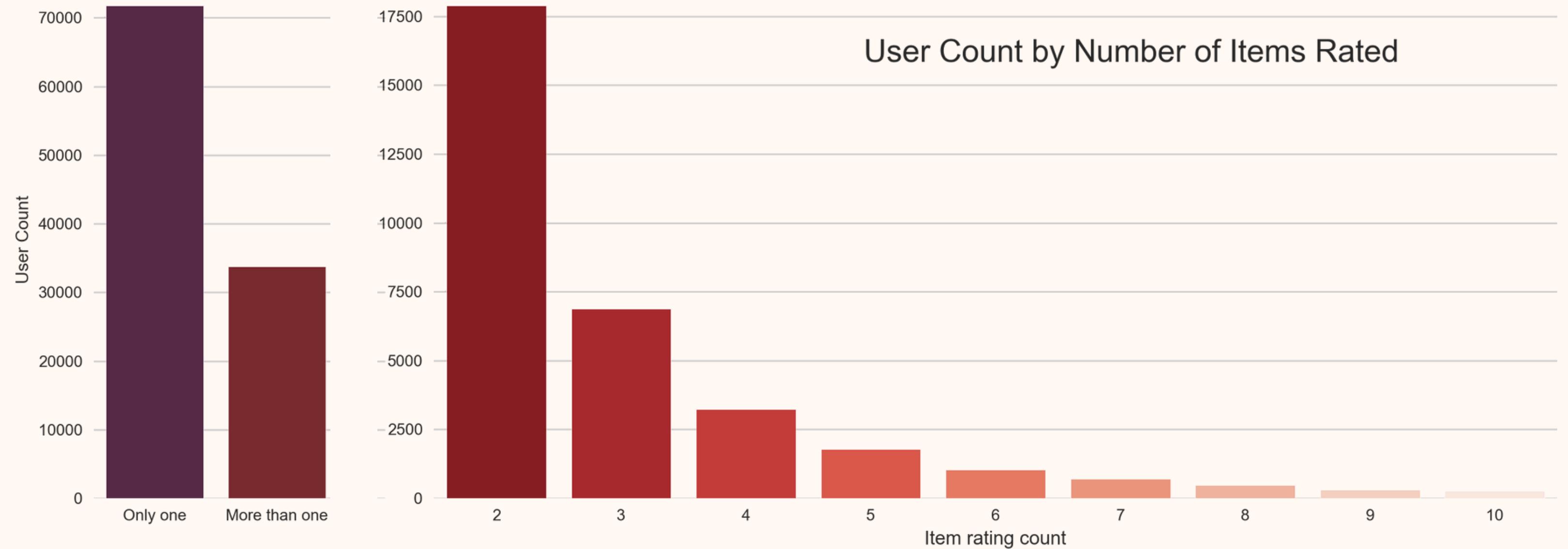


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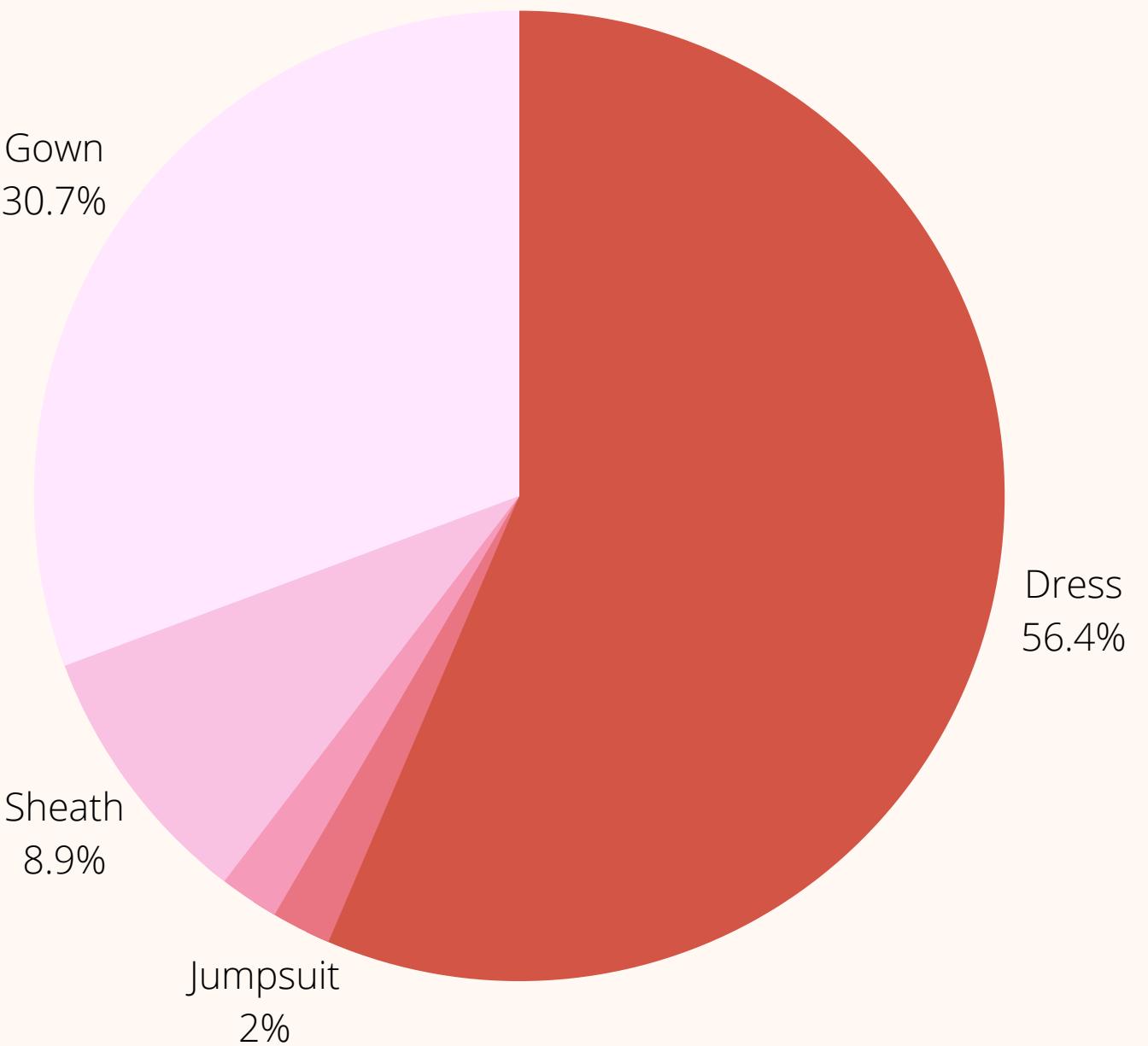
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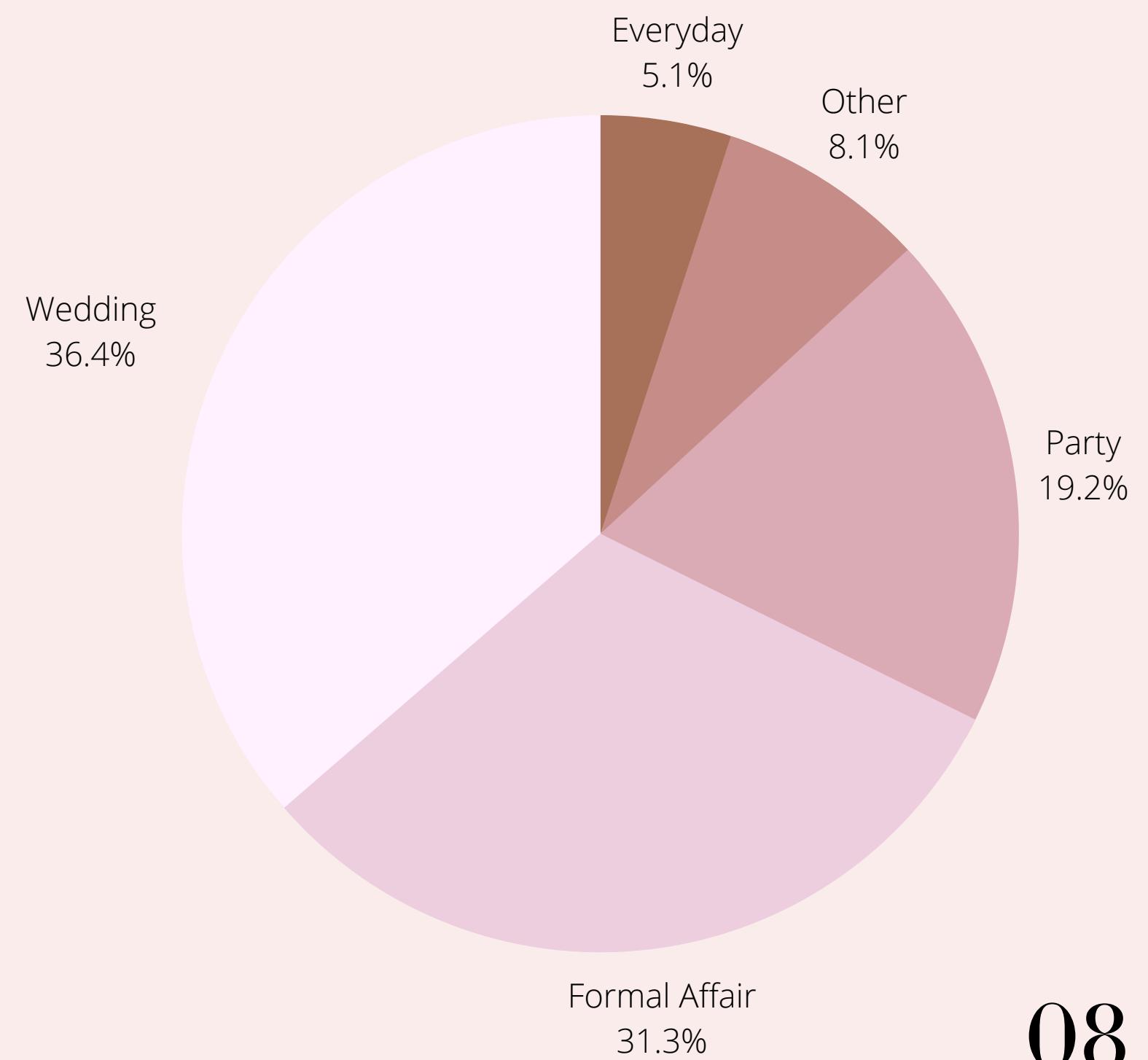
Product Distribution

TOP CATEGORIES



TOP EVENTS

(reasons for rent)



Data Modeling

09

Highest Rated
Individual Items



Highest Rated
Top Categories

Content-Based
Filtering

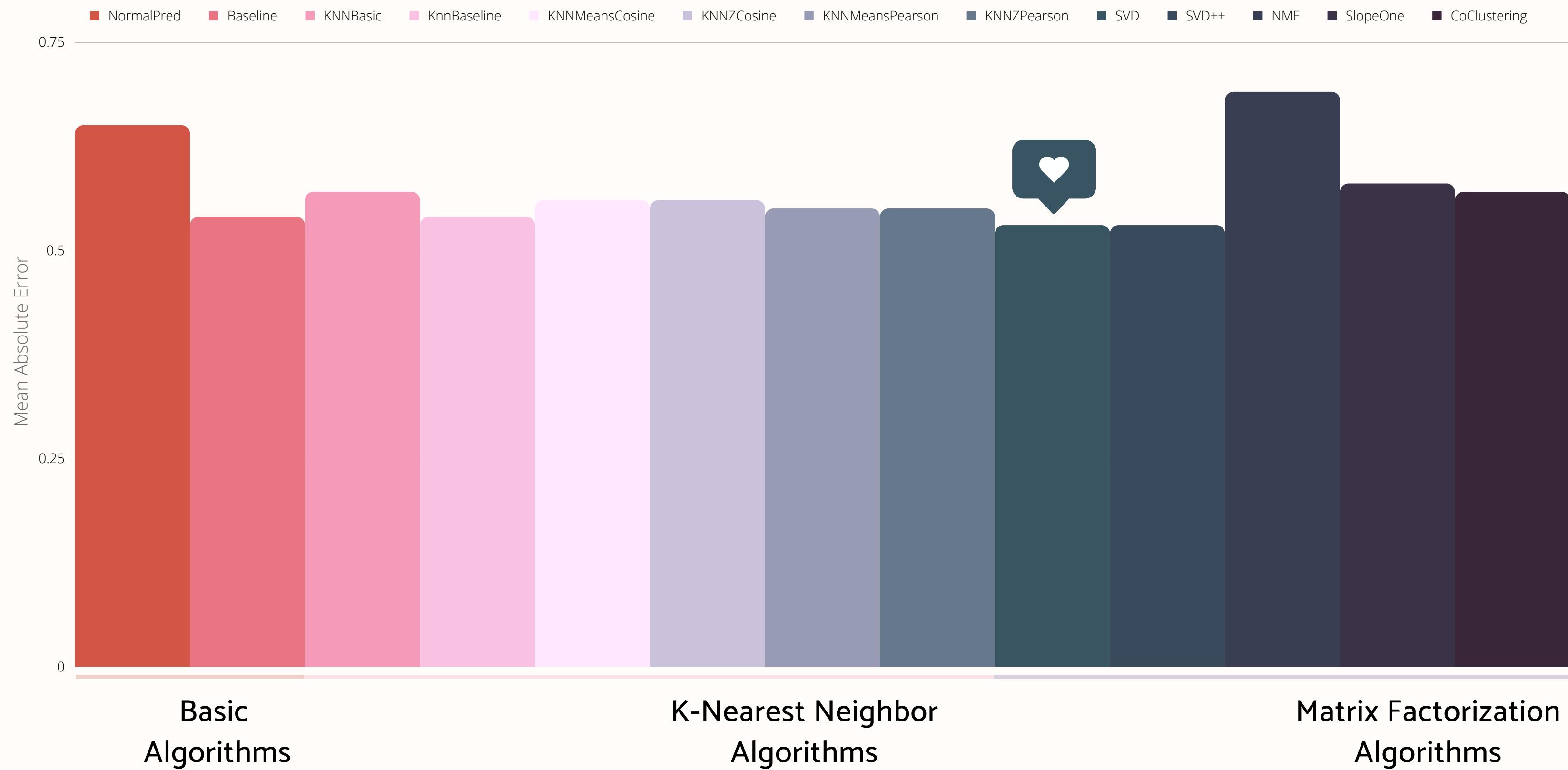
Text-Based
Recommendation

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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