Understanding Customer Behavior and Product Recommendations

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Introduction

In today's competitive market landscape, understanding customer preferences and behaviors is crucial for businesses to stay ahead. This presentation delves into the intricate relationship between customer demographics, sentiment analysis of review texts, and product recommendations. By leveraging data analytics techniques, we aim to extract valuable insights that can inform strategic decision-making and drive business growth.

Objectives

- To explore the relationship between customer demographics, such as age groups, and their preferences for class names and department names.
- To predict the likelihood of product recommendation based on sentiment analysis and length of review text.
- To identify keywords or phrases in review texts that strongly correlate with higher recommendation rates.
- To examine the relationship between age, product ratings, and the likelihood to recommend products.

Dataset Overview

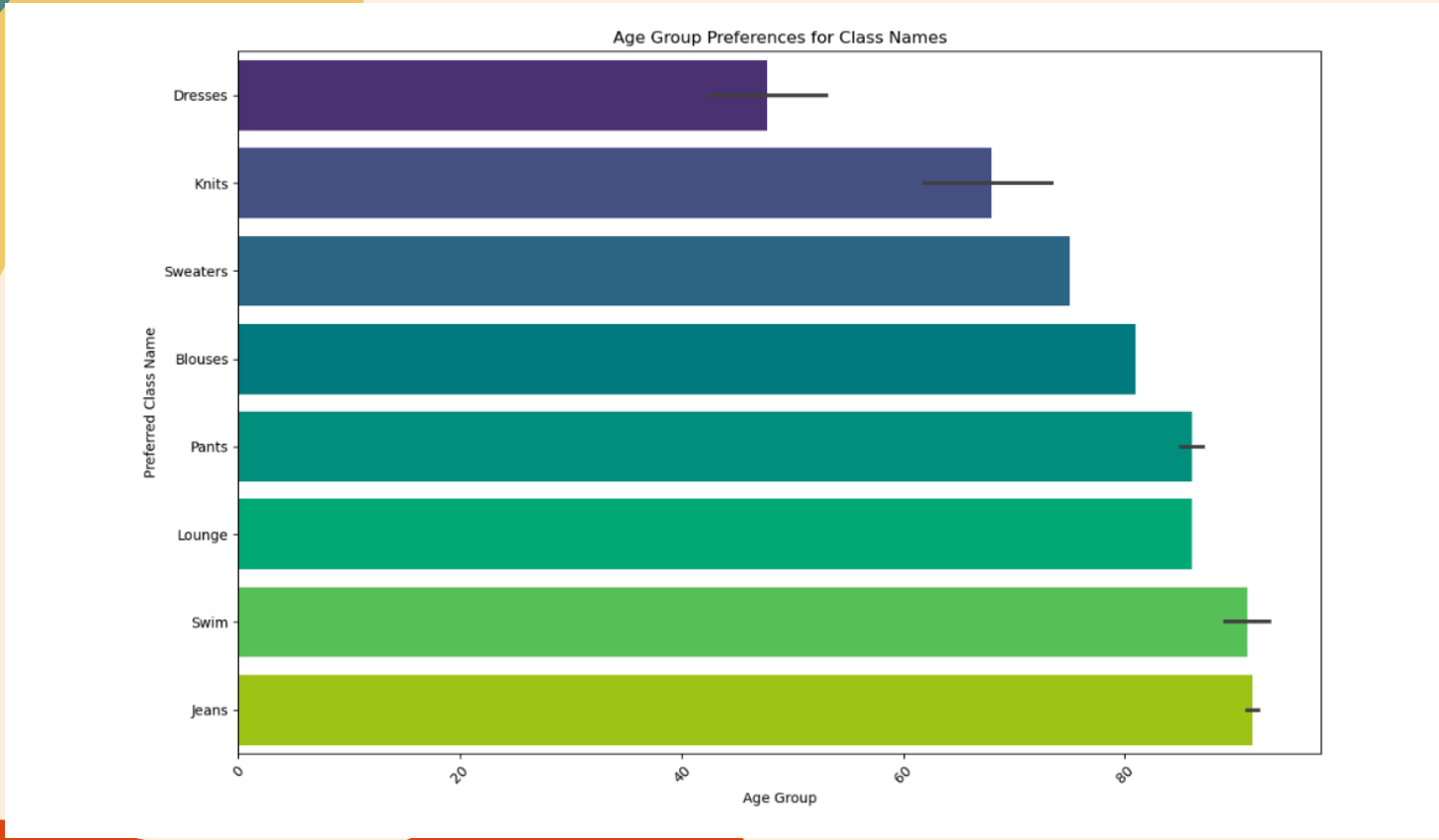
We will be working with a comprehensive dataset collected from an online retail platform. This dataset contains a wide range of attributes, including customer demographics, sentiment analysis of review text, product ratings, and likelihood to recommend. With its richness and diversity, this dataset provides an excellent opportunity to gain insights into customer behavior and preferences.
The dataset consists of the following columns:

1. Clothing ID: Unique identifier for each clothing item.
2. Age: Age of the customer who provided the review.
3. Title: Title of the review provided by the customer.
4. Review Text: Detailed text of the review provided by the customer.
5. Rating: Rating given by the customer for the product.
6. Recommended IND: Binary indicator (1 or 0) indicating whether the product was recommended by the customer.
7. Positive Feedback Count: Number of positive feedback counts given by other customers for the review.
8. Division Name: Division within the retail organization to which the product belongs.
9. Department Name: Department within the division to which the product belongs.
10. Class Name: Class category of the product.

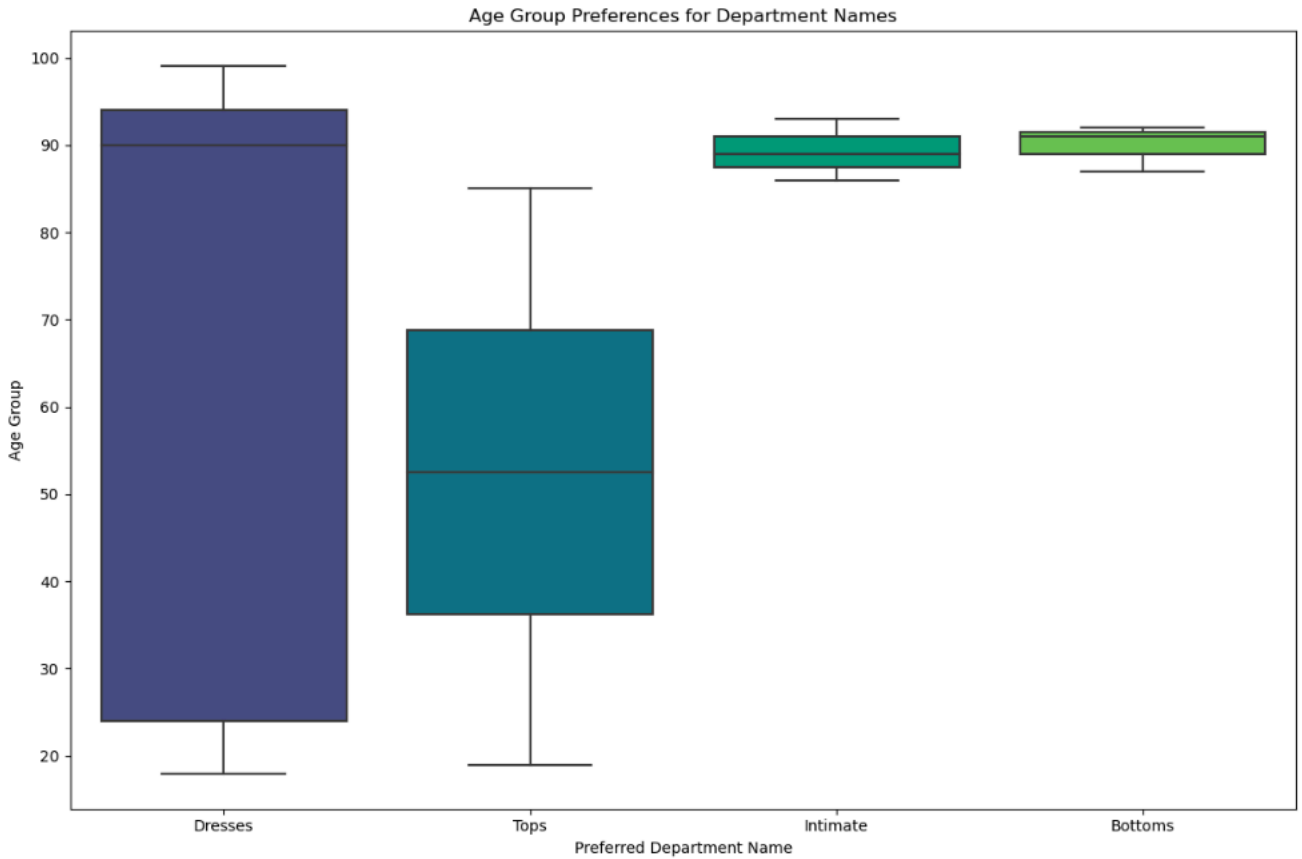
Research Questions

- Age Groups and Preferences: Investigating how different age groups tend to prefer certain class names and department names, shedding light on consumer behavior patterns across demographic segments.
- Sentiment Analysis and Product Recommendations: Assessing the predictive power of sentiment analysis and review text length in determining the likelihood of product recommendations, and identifying key phrases associated with higher recommendation rates.
- Age and Likelihood to Recommend: Exploring the relationship between age and the likelihood of recommending products, providing insights into age-specific consumer tendencies.
- Rating and Likelihood to Recommend: Analyzing the correlation between product ratings and the likelihood of recommending products, offering insights into the influence of ratings on consumer recommendations.

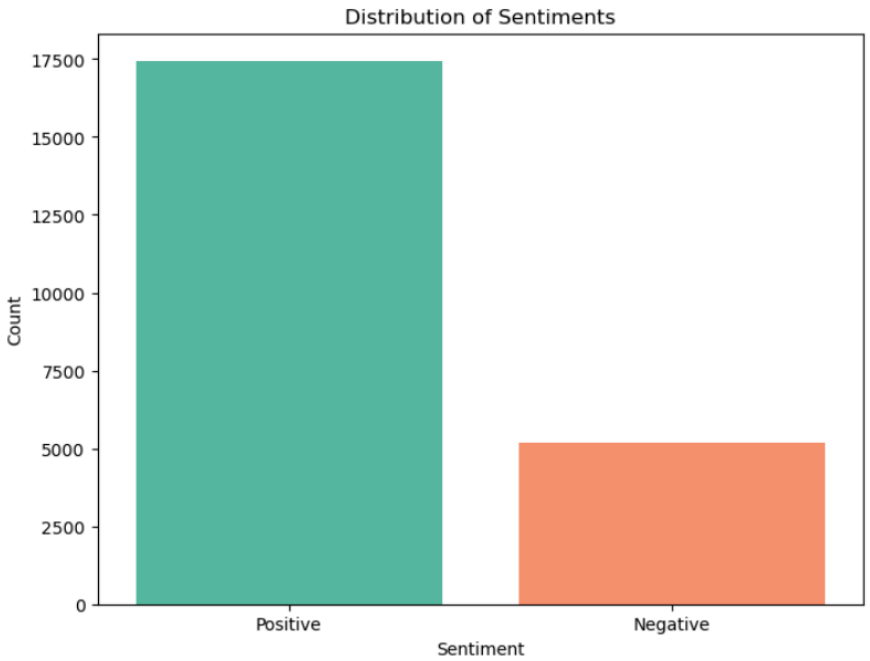
Age Groups and Preferences

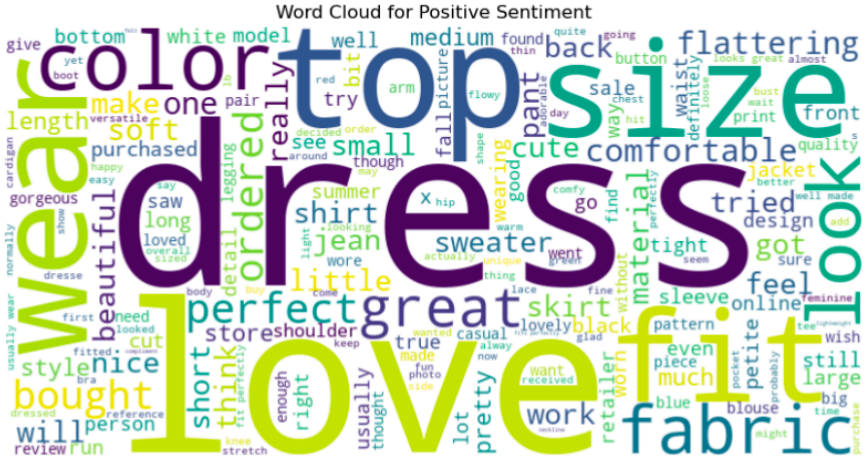


Age Groups and Preferences

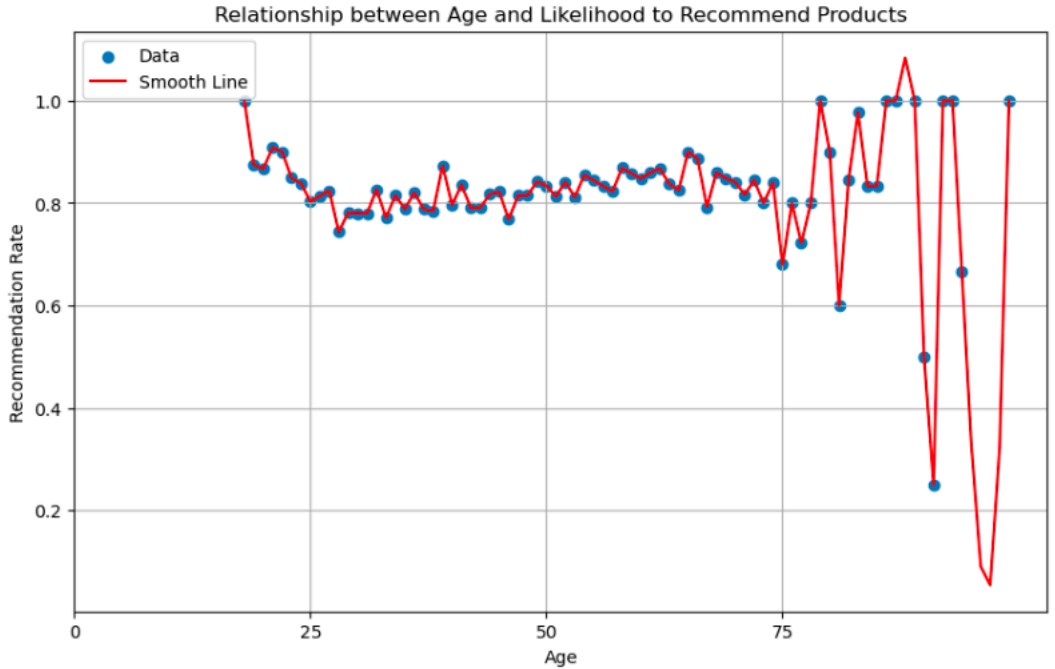


Review text length in determining the likelihood of product recommendations

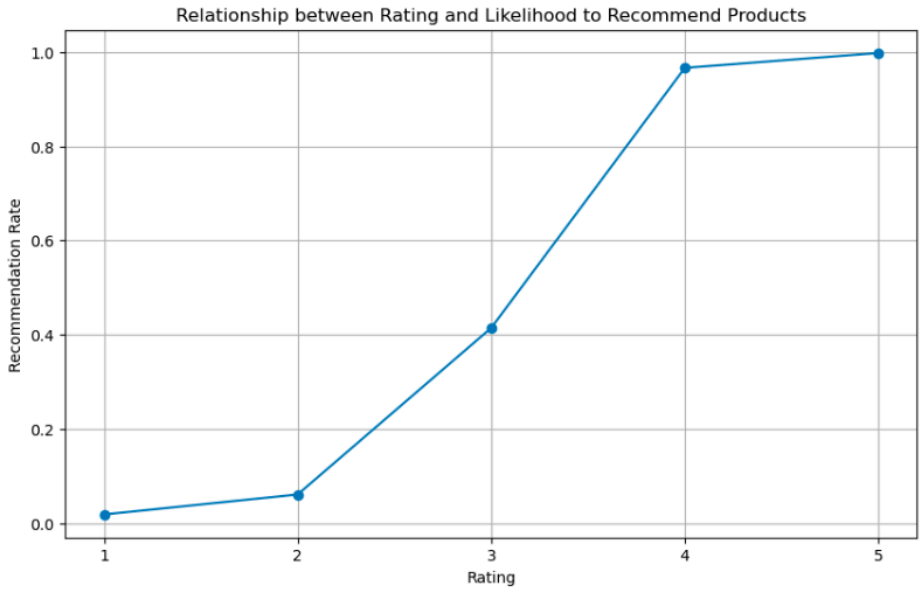




Relationship between age and the likelihood of recommending products



Rating and Likelihood to Recommend



Accuracy: 0.9346434091410908
Classification Report:

	precision	recall	f1-score	support
0	0.76	0.93	0.84	812
1	0.98	0.94	0.96	3717
accuracy			0.93	4529
macro avg	0.87	0.93	0.90	4529
weighted avg	0.94	0.93	0.94	4529

Conclusion

By analyzing the relationship between age groups, preferences, sentiment analysis of review text, and product recommendations, we gain valuable insights into customer behavior.
These insights can inform strategic decision-making for product development, marketing strategies, and customer engagement initiatives.
The findings of this analysis can help optimize product offerings, enhance customer satisfaction, and drive business growth.

Thank You