



DATA ANALYSIS INSIGHTS FOR TURTLE GAMES

Enhancing Customer Engagement
and Marketing Performance

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BACKGROUND AND CONTEXT



Background:

- Turtle Games: Global manufacturer and retailer of games, toys, and books.
- Objective: Improve marketing strategies and enhance customer loyalty

Programs and Techniques Used:

- Python and RStudio
 - Predictive Modeling: Understanding factors influencing loyalty points.
 - Clustering: Segmenting customers for targeted marketing.
 - Natural Language Processing (NLP): Analyzing customer feedback.
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OBJECTIVE BREAKDOWN

01 - PREDICTORS

How do customers engage with and accumulate loyalty points?
What are the most significant predictors of loyalty points?

02 - CUSTOMER SEGMENTATION

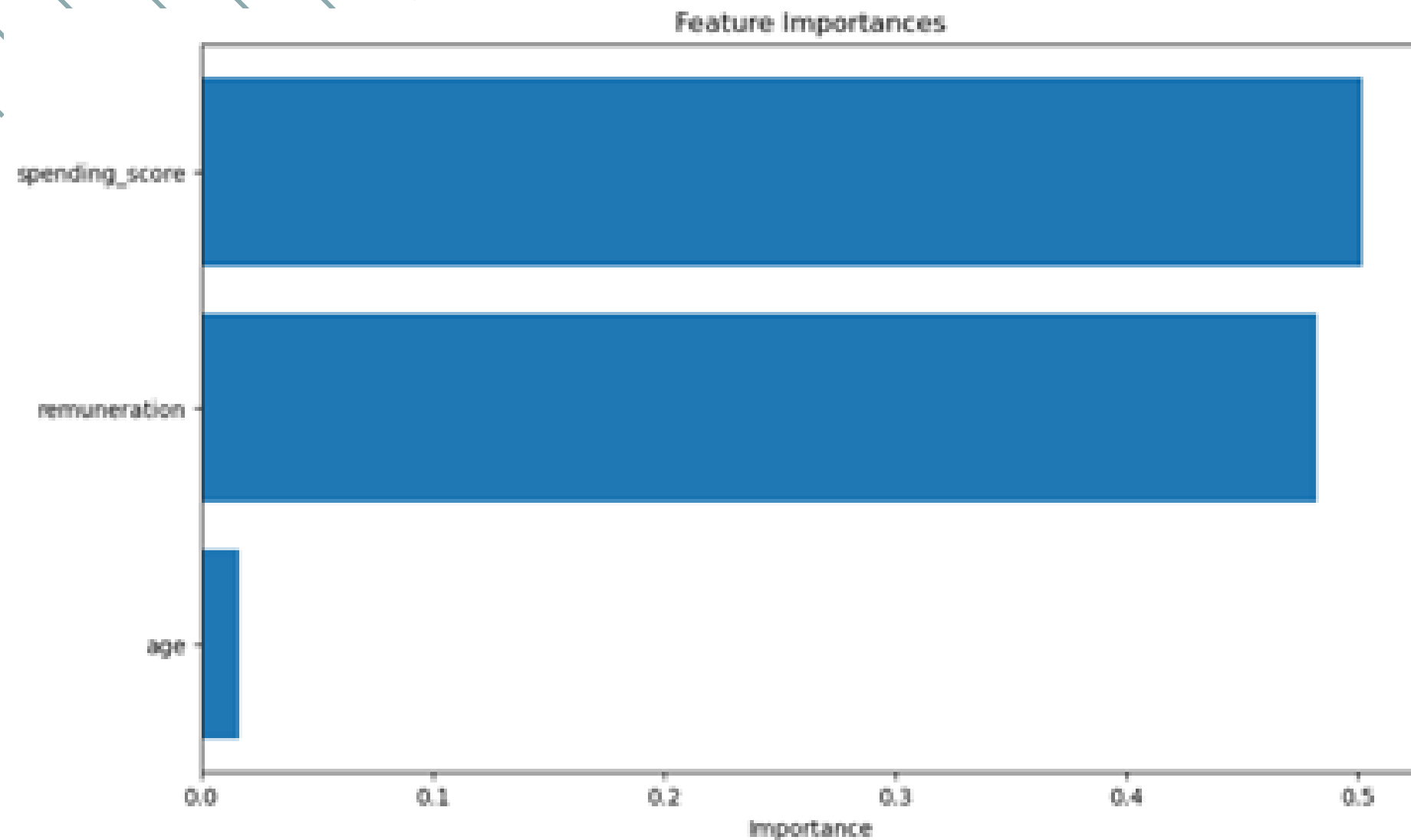
How can customers be segmented into groups, and which groups can be targeted by the marketing department?

03 - SENTIMENT ANALYSIS

How can text data be used to inform marketing campaigns and make improvements to the business?



PREDICTIVE MODELING INSIGHTS



The Random Forest model applied to predict loyalty points yielded accurate results, demonstrating strong predictive power

Key Findings:

Random Forest Model:

- Explained >99% variance in loyalty points.
- High accuracy confirmed through cross-validation.

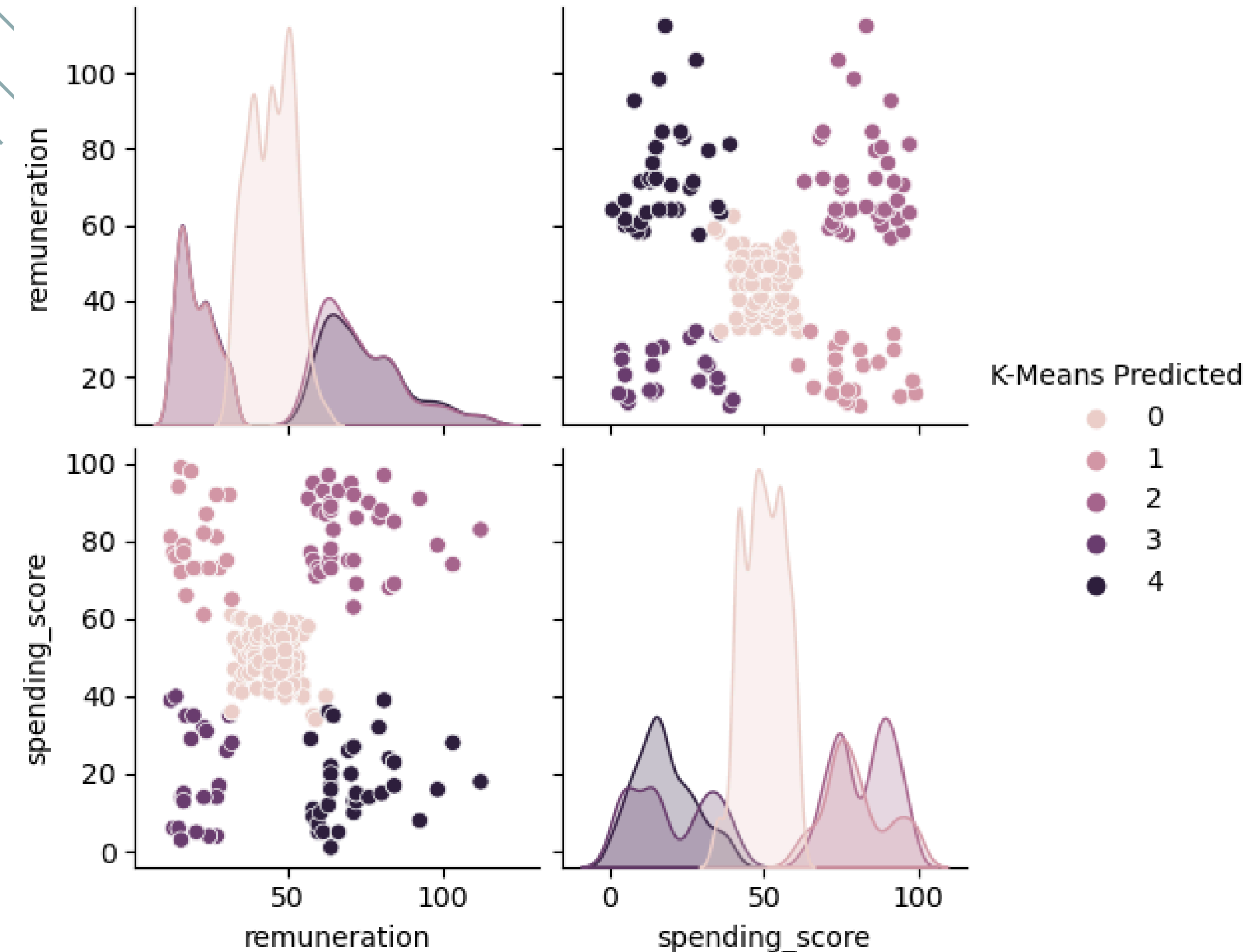
Key Predictors:

- Spending Score: Most influential factor (50% contribution).
- Remuneration: Moderate impact (30% contribution).
- Age: Minimal influence.

Business Implication:

Focus on spending behavior to enhance loyalty program effectiveness.

CUSTOMER SEGMENTATION INSIGHTS



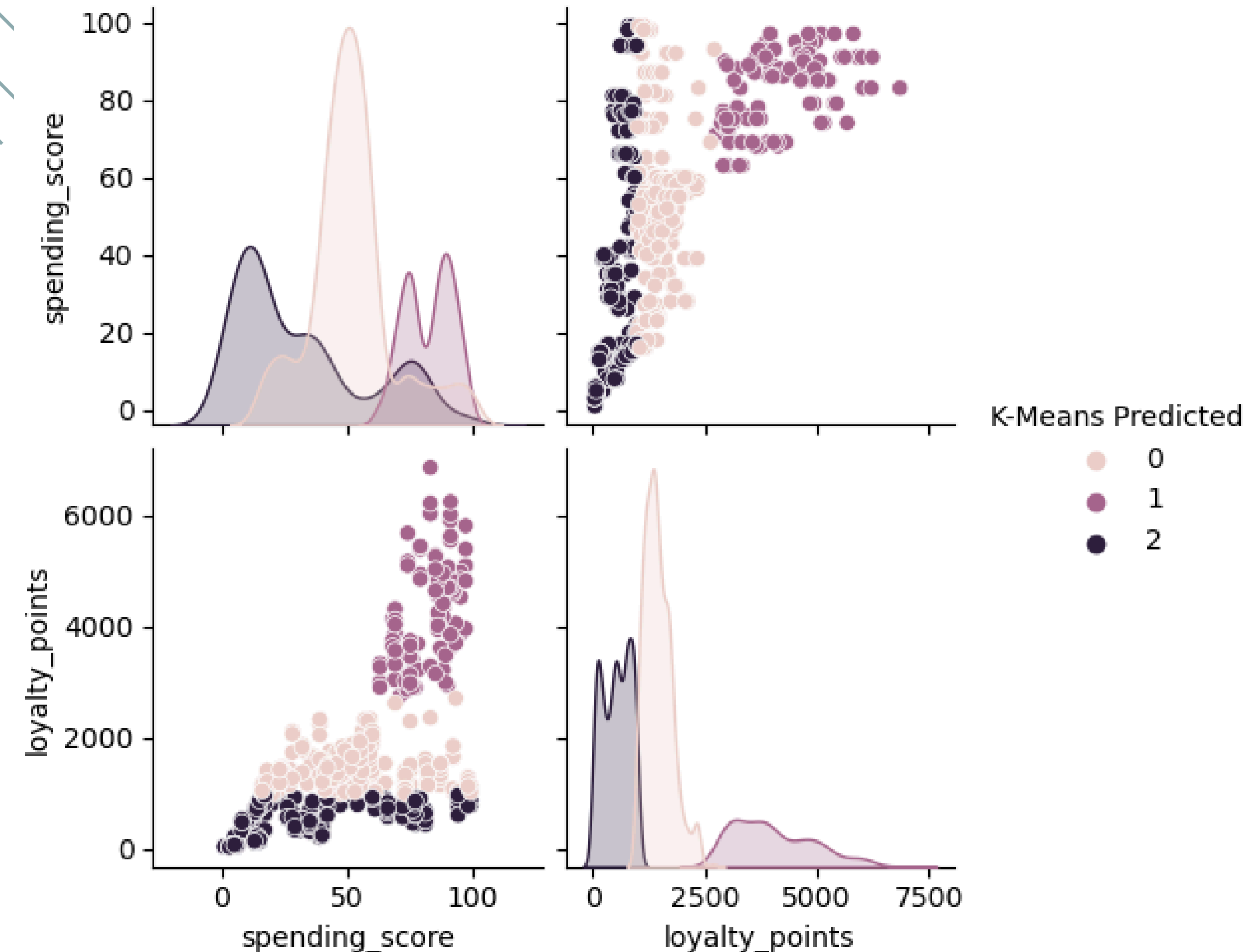
Clusters Identified:

- *Cluster 0: Low remuneration and low spending (inactive customers).*
- *Cluster 1: Moderate remuneration and spending (average customers).*
- *Cluster 2: High spenders with low remuneration (price-sensitive).*
- *Cluster 3: High remuneration and high spending (premium customers).*
- *Cluster 4: High remuneration but low spending (untapped potential).*

Business Value:

- **Target high-value segments with tailored marketing strategies.**
- **Engage untapped customers to boost sales.**

CUSTOMER SEGMENTATION INSIGHTS



Clusters Identified:

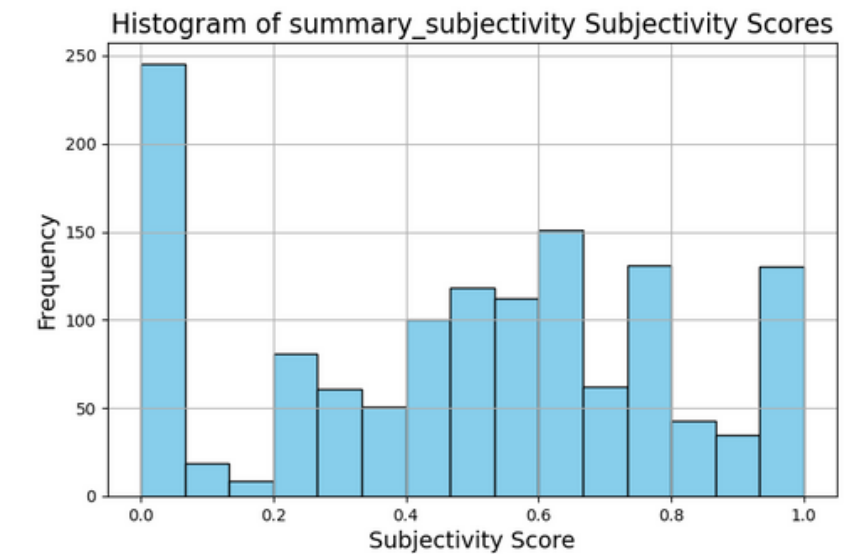
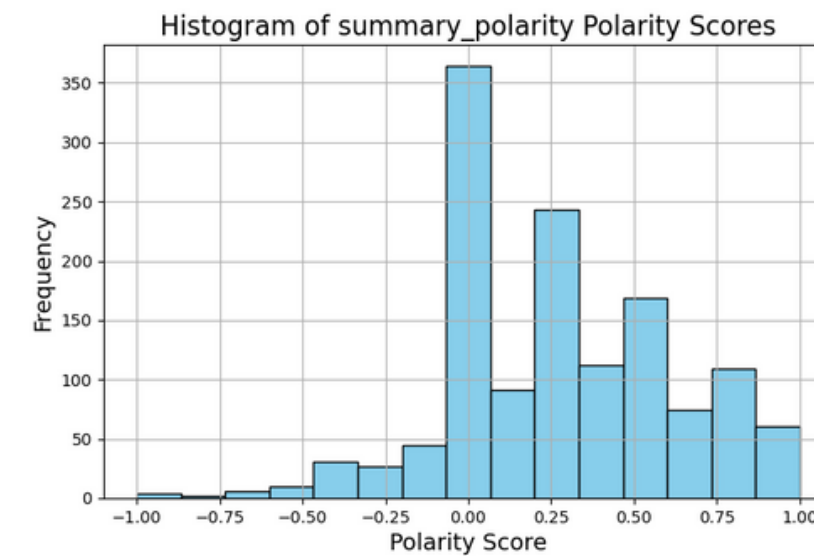
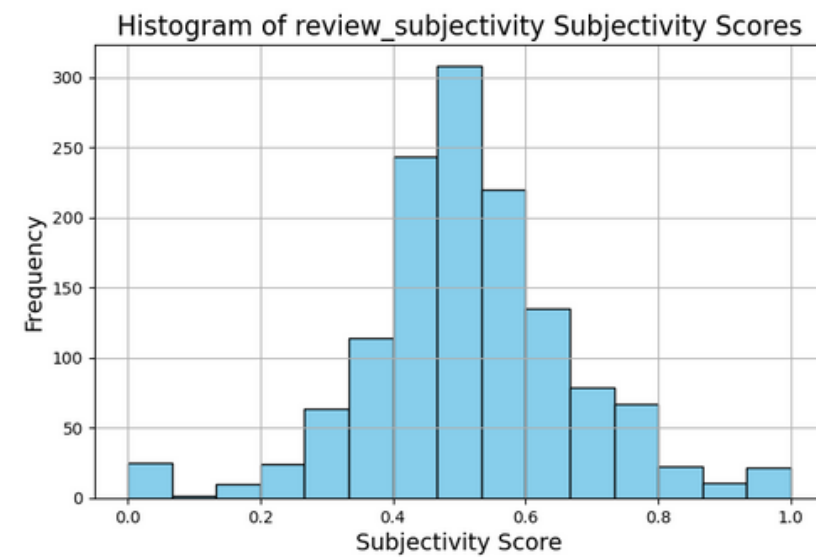
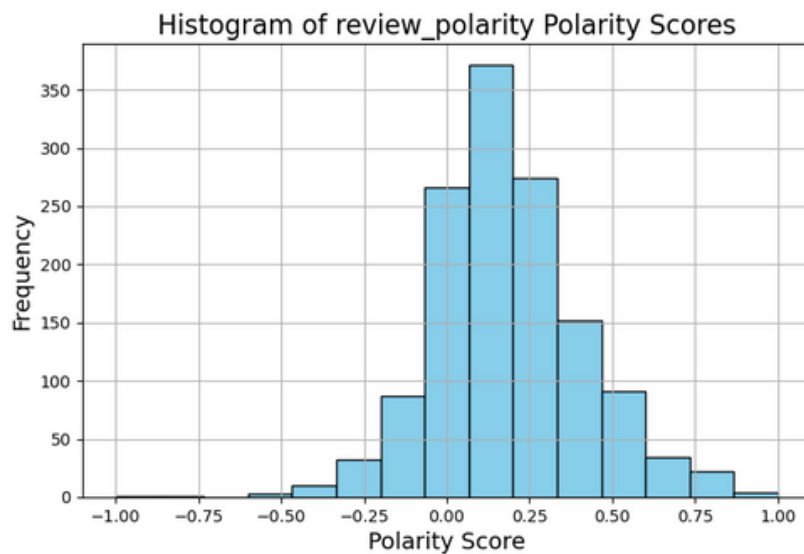
- *Cluster 0: Low spending and loyalty points, likely inactive customers.*
- *Cluster 1: High spending and loyalty points, representing highly engaged, loyal customers.*
- *Cluster 2: Moderate spending but low loyalty points, suggesting potential for increased engagement through targeted marketing.*

Business Value:

- **Enhance Loyalty Program:** Add exclusive perks and early product access; incentivize referrals with rewards.
- **Personalized Marketing:** Focus on loyalty points and rewards; offer bonus points for targeted purchases to drive spending.

INSIGHTS FROM CUSTOMER FEEDBACK

Analysis Overview:
Focus: Customer reviews and summaries.



- **Polarity Scores:**

The distribution is centered around zero, indicating that customer feedback is generally neutral, with some positive and negative sentiments.

- **Subjectivity Scores:**

The right-skewed distribution peaks around 0.6, suggesting reviews are mostly subjective, reflecting personal opinions.

- Neutral polarity highlights a need to enhance customer experiences.
- Subjective reviews can guide targeted marketing strategies by revealing customer sentiments.

- **Polarity Scores:**

The histogram reveals a wider spread of polarity scores, with a significant peak near zero and many positive values, indicating more varied sentiment in summaries compared to reviews.

- **Subjectivity Scores:**

The bimodal distribution suggests that many summaries are either highly subjective or highly objective, with fewer in the middle, contrasting with reviews that are generally moderately subjective.

- Summaries are either highly subjective or objective, they tend to emphasize stronger opinions, unlike the more balanced reviews. This suggests that reviews offer more balanced feedback and then useful insights.

A decorative graphic consisting of several parallel diagonal lines on the left and a single curved line on the right, all in a muted teal color.

WordCloud for review



WordCloud for summary



The background features four decorative geometric patterns in the corners. The top-left corner has a series of parallel diagonal lines in a light blue-grey color. The top-right corner contains a cluster of overlapping semi-circles in yellow, red, teal, and dark blue. The bottom-left corner features a similar cluster of overlapping semi-circles in red, teal, and dark blue. The bottom-right corner has a large, light blue-grey arc with several parallel diagonal lines extending from its base.

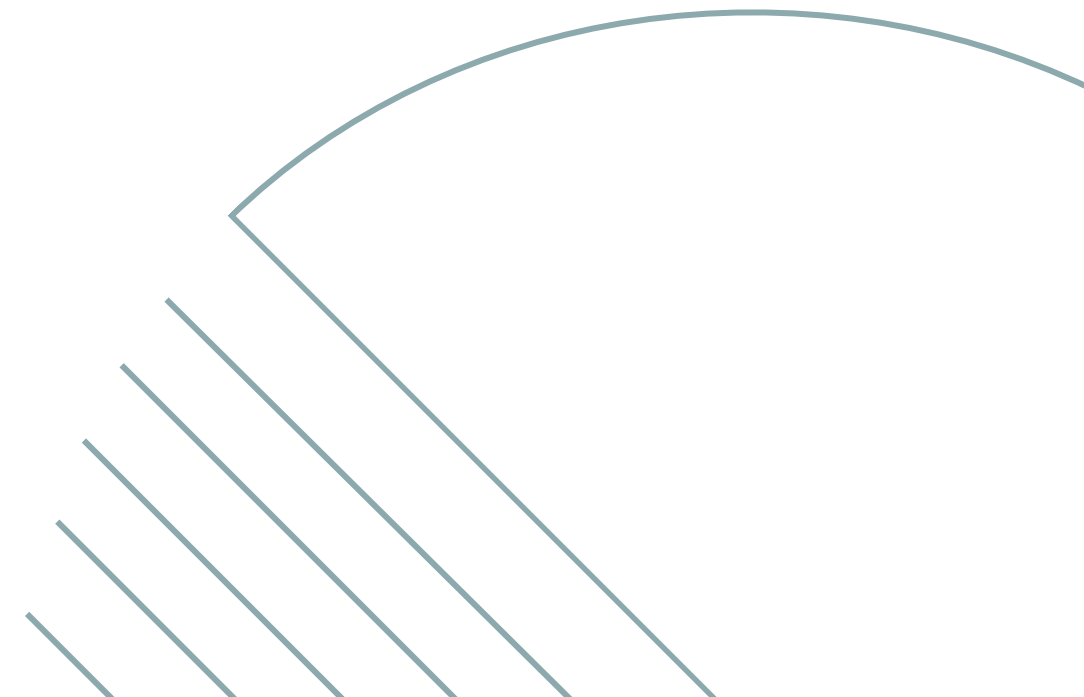
SUMMARY

SUMMARY OF INSIGHTS:

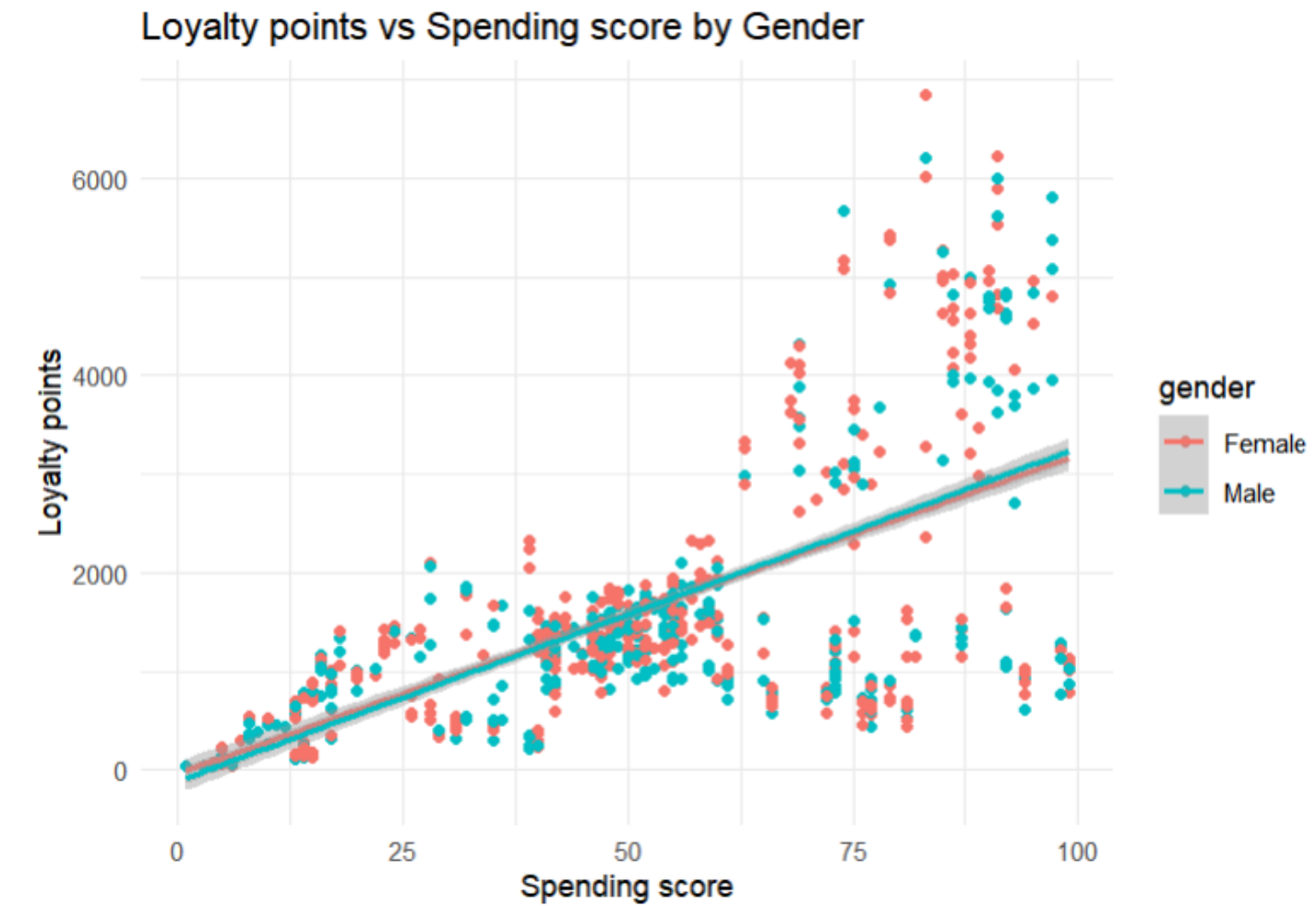
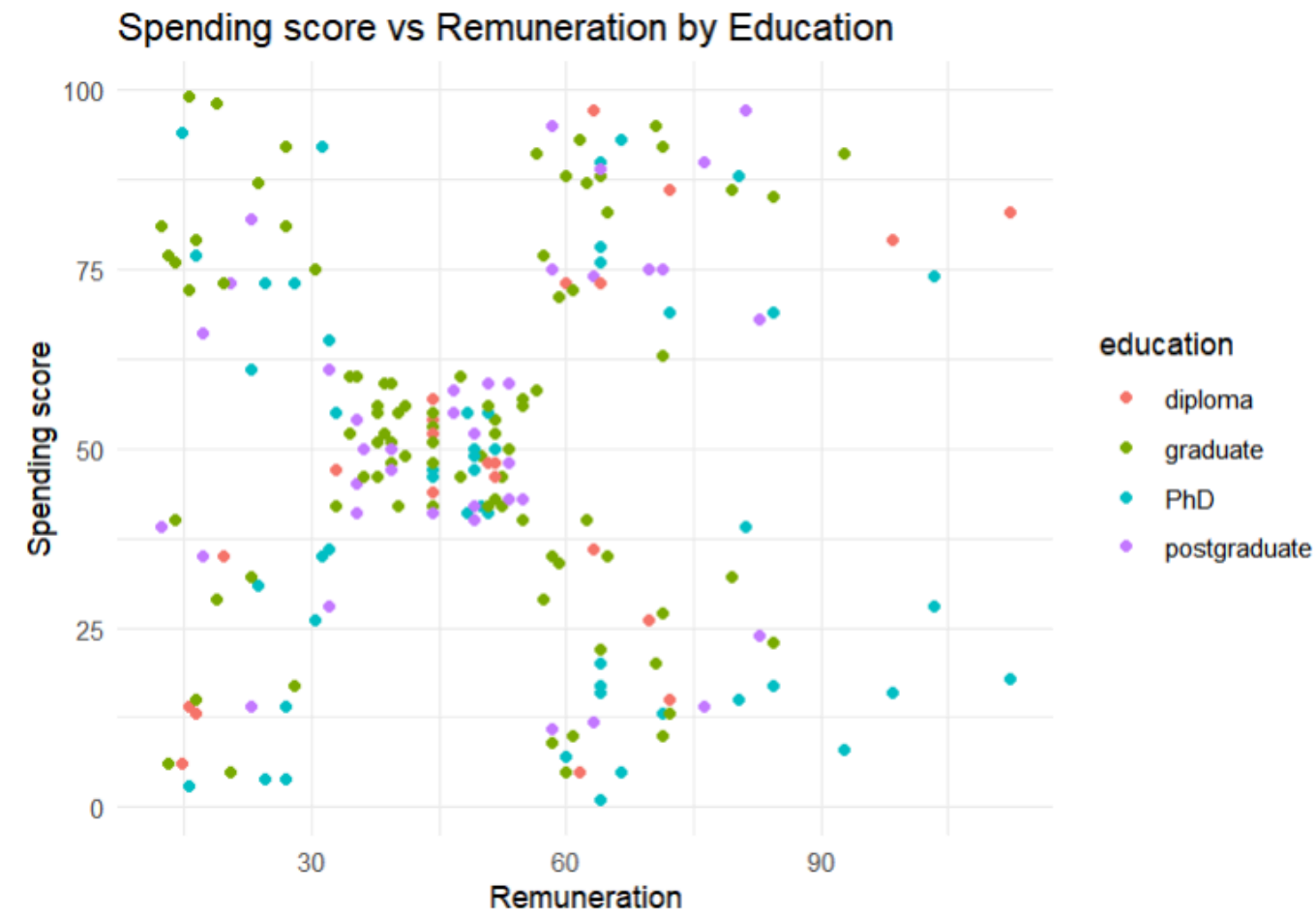
- Spending behavior drives loyalty points.
- High-value customer segments identified for targeted marketing.
- Sentiment analysis reveals customer feedback dynamics.

FINAL RECOMMENDATIONS

- Incentivize spending through personalized offers.
- Tailor premium offers for high-income segments.
- Use customer feedback for continuous improvement.



RECOMMENDATIONS FOR FUTURE ANALYSIS:



- **To gain a deeper segmentation:**

Enhance Data Gathering: Improve data collection processes to capture all relevant information, including surveys, user feedback, and detailed logging of customer interactions.

- **Sentiment Trend Analysis:**

Track sentiment changes over time to gauge campaign effectiveness.

- **Expected Outcomes:**

More targeted marketing efforts.

Enhanced customer engagement and loyalty.

The image features a light gray background with the text "THANK YOU" centered in a bold, blue, sans-serif font. The corners are decorated with abstract geometric patterns. The top-left corner has a series of parallel diagonal lines in a light blue-gray color. The top-right corner features a cluster of overlapping semi-circles in yellow, red, teal, and dark blue. The bottom-left corner also has a cluster of overlapping semi-circles in red, teal, and dark blue. The bottom-right corner contains a large, light blue-gray arc with several parallel diagonal lines extending from its base.

THANK YOU