MRM Quiz Assignment

Marketing Research Methods

📟 **Date:** 10/02/2025
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🔗 **GitHub Repository:** [MRM-Assignment-10th-Feb](https://github.com/NivratiKothari/MRM-Assignment-10th-Feb/tree/main)
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Amazon Reviews: Managerial Implications of Data Analysis

Understanding the Business Context

In today's highly competitive e-commerce landscape, businesses cannot afford to ignore customer feedback. **Amazon reviews** provide direct insights into product performance, customer expectations, and satisfaction levels. By leveraging data-driven analysis, companies can make informed decisions that **improve customer experience, refine product offerings, and drive long-term retention**.

This analysis focuses on **extracting meaningful insights from Amazon review data** using key analytical methods.

Key Analytical Approaches & Business Insights

1. Sentiment Analysis of Customer Reviews

Objective:

To evaluate customer sentiment and understand how product perception evolves over time.

Key Insights:

✔ Identifying recurring **pain points** in negative reviews helps prioritize **product enhancements**.
✔ Understanding **positive sentiment drivers** enables businesses to **refine marketing messages**.
✔ Analyzing **sentiment trends over time** provides insights into product lifecycle performance.

Business Application:

If a product consistently receives **negative sentiment** about battery life, **R&D teams** can prioritize improvements. Conversely, if customers praise durability, **marketing teams** can leverage this strength in promotional content.

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2. Extracting Key Themes from Review Summaries

Objective:

To identify the most frequently discussed product attributes using **Natural Language Processing (NLP)**.

Key Insights:

✔ Moves beyond sentiment by focusing on **what customers discuss the most**.
✔ Helps **refine product messaging and branding** based on customer perception.
✔ Detects **emerging trends and concerns** before they escalate into major issues.

Business Application:

- If "fast delivery" appears frequently in positive reviews, **logistics teams** can maintain or further improve delivery speed.
- If "poor packaging" is a recurring issue, **operations teams** should reassess packing materials and handling processes.

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3. Understanding What Makes a Review Helpful

Objective:

To analyze the characteristics of reviews that receive the most helpful votes.

Key Insights:

✔ **Detailed reviews** are more likely to be marked as helpful.
✔ Highly rated, informative reviews **influence purchase decisions**.
✔ Encouraging **customer engagement** in reviews can build credibility.

Business Application:

Businesses can **incentivize customers** to leave detailed, high-quality reviews by offering loyalty points or discounts. Additionally, showcasing **top-rated reviews** in marketing materials can boost conversion rates.

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4. Customer Churn Prediction

Objective:

To identify customers at risk of **disengagement** and implement **proactive retention strategies**.

Key Insights:

✔ **Retaining existing customers** is more cost-effective than acquiring new ones.
✔ **Customers with negative sentiment** are at a higher risk of churning.
✔ Frequent review contributors tend to have **higher retention rates**.

Business Application:

Companies can use **automated follow-up emails** offering special discounts or additional support for customers leaving negative reviews. Customers who engage frequently with reviews can be **rewarded with exclusive benefits** to strengthen loyalty.

Strategic Takeaways

The insights derived from this analysis reinforce the importance of **leveraging customer feedback** as a **strategic business asset**. Implementing these findings across departments can lead to meaningful improvements:

✓ **Product Development:** Address **recurring product issues** based on customer reviews.
✓ **Marketing & Branding:** Align promotional content with **features customers value the most**.
✓ **Customer Engagement & Retention:** Implement **targeted interventions** to reduce churn.
✓ **E-Commerce Strategy:** Optimize **review display algorithms** to enhance purchase confidence.

By actively listening to customers and **adapting business strategies accordingly**, brands can **increase brand loyalty and sustain long-term competitive advantage**.

Orders, Sales, Profitability, and Customer Retention Analysis

Leveraging Data for Strategic Decision-Making

Understanding **sales drivers, profitability factors, and customer retention patterns** is essential for optimizing pricing strategies, improving operational efficiency, and strengthening customer loyalty. This analysis explores the key insights derived from order data.

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1. Sales Prediction & Drivers (Linear Regression Analysis)

Objective:

To identify factors that significantly impact **sales performance**.

Key Insights:

✓ **Bulk orders drive revenue**, making volume-based promotions effective.
✓ **High-margin products contribute positively** to sales, highlighting the need to emphasize premium offerings.
✓ **Excessive discounting negatively affects sales**, suggesting the need for a more refined approach.
✓ **Shipping costs correlate with high-value orders**, indicating that premium customers are less sensitive to shipping fees.

Strategic Recommendations:

- Implement **tiered pricing** or **subscription-based models** to encourage bulk purchases.
- Re-evaluate the **discounting strategy**—shift from broad markdowns to **selective, high-impact promotions**.
- Offer **free shipping incentives** for high-value customers to **boost retention**.

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2. Profitability Prediction (Logistic Regression Analysis)

Objective:

To determine the likelihood of an order being **profitable or not**.

Key Insights:

✓ The model predicts profitability with **67% accuracy**, making it a useful but improvable tool.
✓ **Discounting has the strongest negative impact** on profitability.
✓ **Premium products may not always be profitable**, indicating a need for **cost structure reassessment**.
✓ **Shipping costs have a small but noticeable impact** on profitability.

Strategic Recommendations:

- Optimize **discount policies** by bundling instead of offering flat markdowns.
- Adjust **pricing strategies** for premium products to align with demand.
- Enhance **logistics cost-efficiency** through bulk shipping and strategic fulfillment centers.

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3. Customer Lifetime Value (CLV) & Retention Strategies

Objective:

To segment customers based on lifetime value and optimize retention efforts.

Key Insights:

✓ **High-CLV customers** drive long-term profitability and should be prioritized.
✓ **Low-CLV customers** require **targeted re-engagement efforts** to boost retention.
✓ **Marketing budget should prioritize retention over new customer acquisition** for higher ROI.

Strategic Recommendations:

- Provide **personalized offers and loyalty perks** for high-value customers.
- Launch **win-back campaigns** targeting inactive customers with tailored incentives.
- Optimize **customer engagement strategies** based on historical purchasing behavior.

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4. Customer Churn Prediction (Cox Proportional Hazard Model)

Objective:

To identify factors influencing customer attrition and design **proactive retention strategies**.
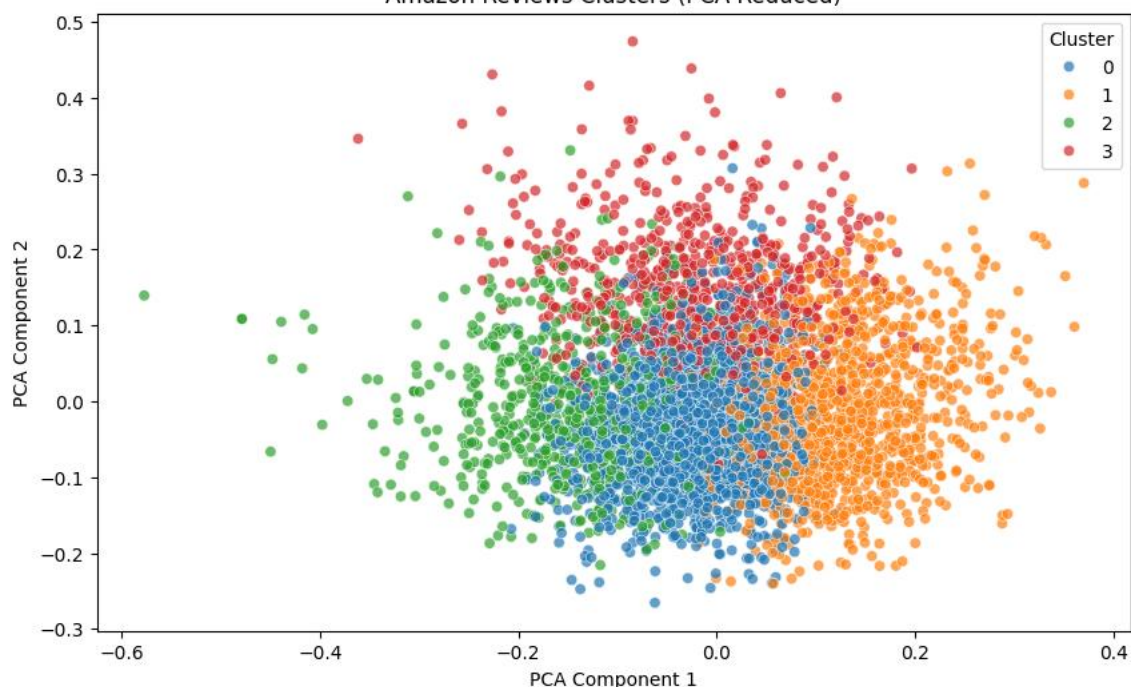
Key Insights:

✓ **Customers with frequent discounts tend to churn**, signaling a need for value-driven engagement.
✓ **Long-term customers are more stable**, reinforcing the importance of loyalty programs.
✓ **Shipping costs do not significantly drive churn**, meaning customers accept reasonable fees if the value proposition is strong.
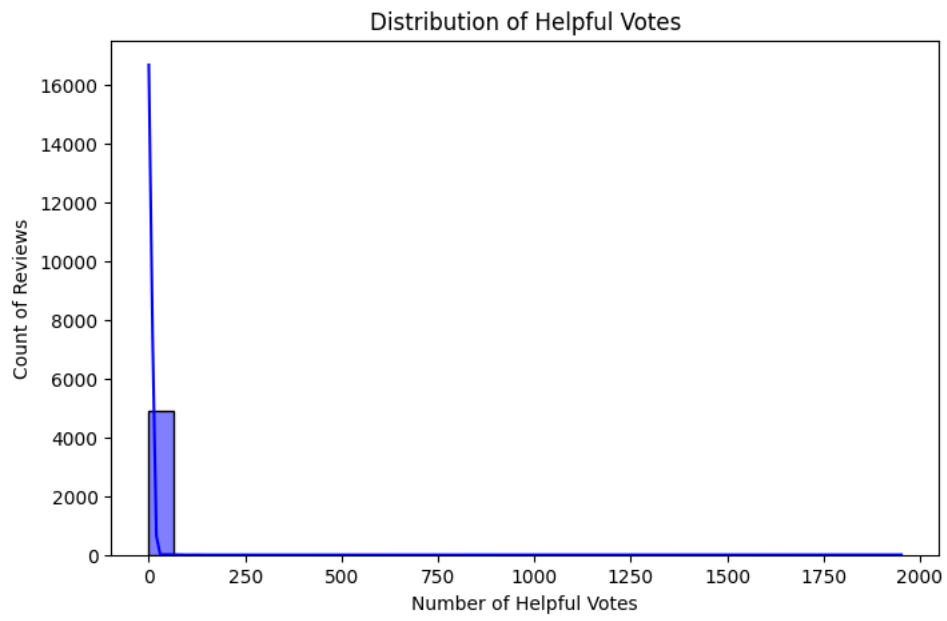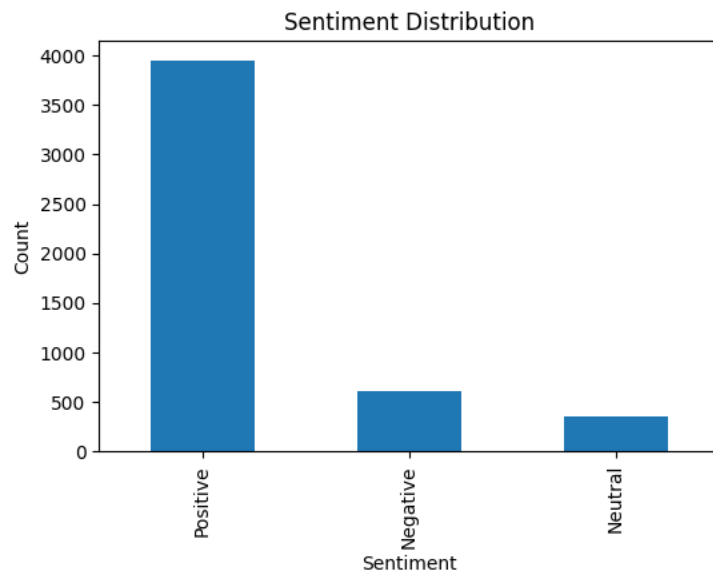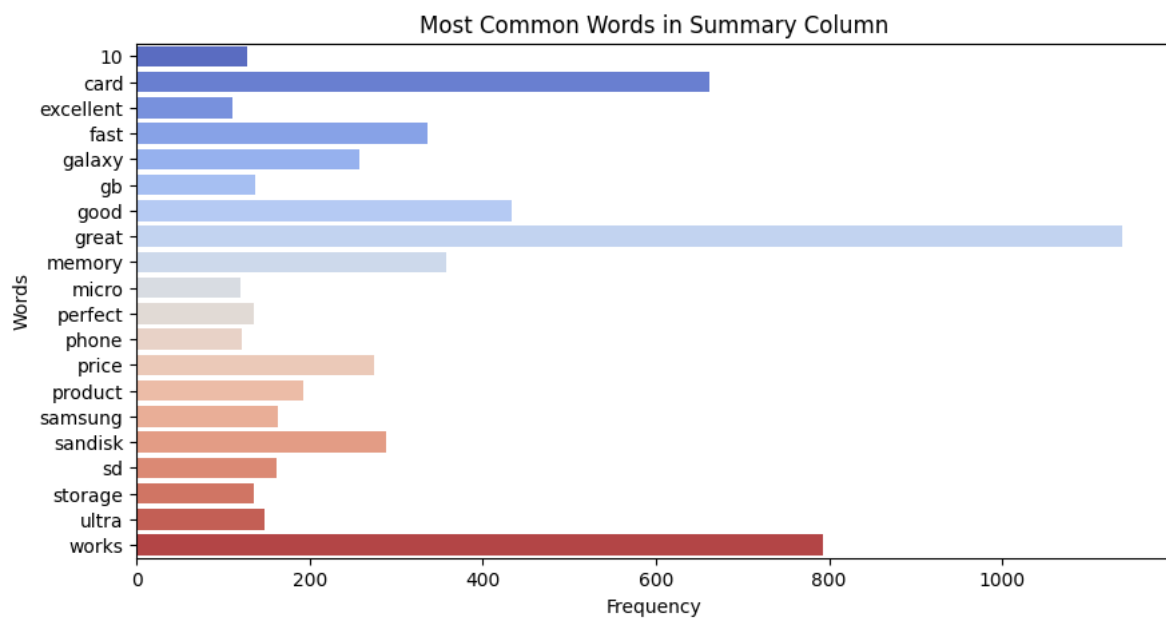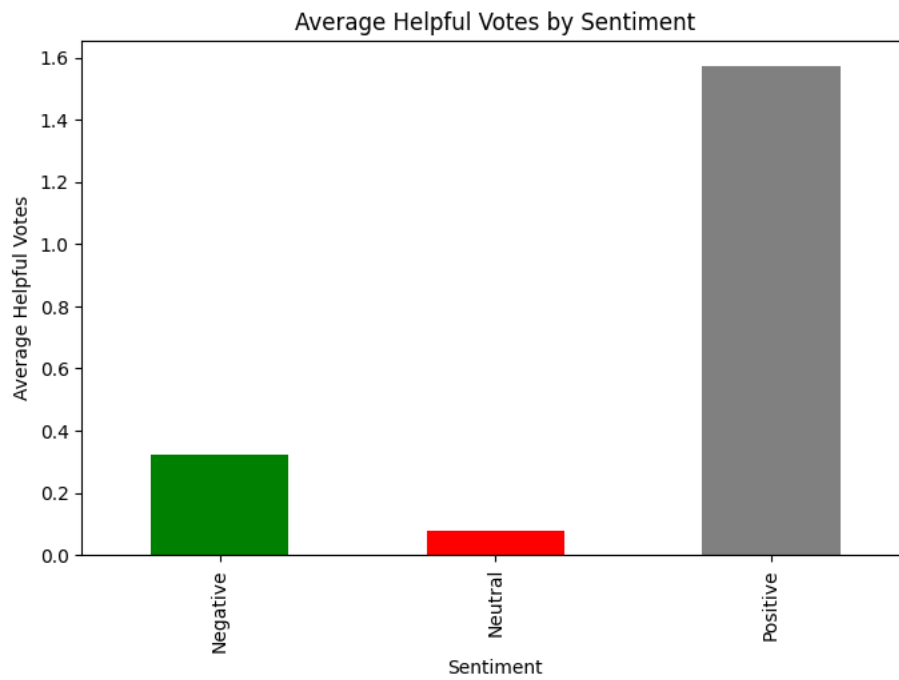
Strategic Recommendations:

- **Personalized retention programs** for at-risk customers.
- Transition from **discount-heavy strategies to value-based loyalty programs**.
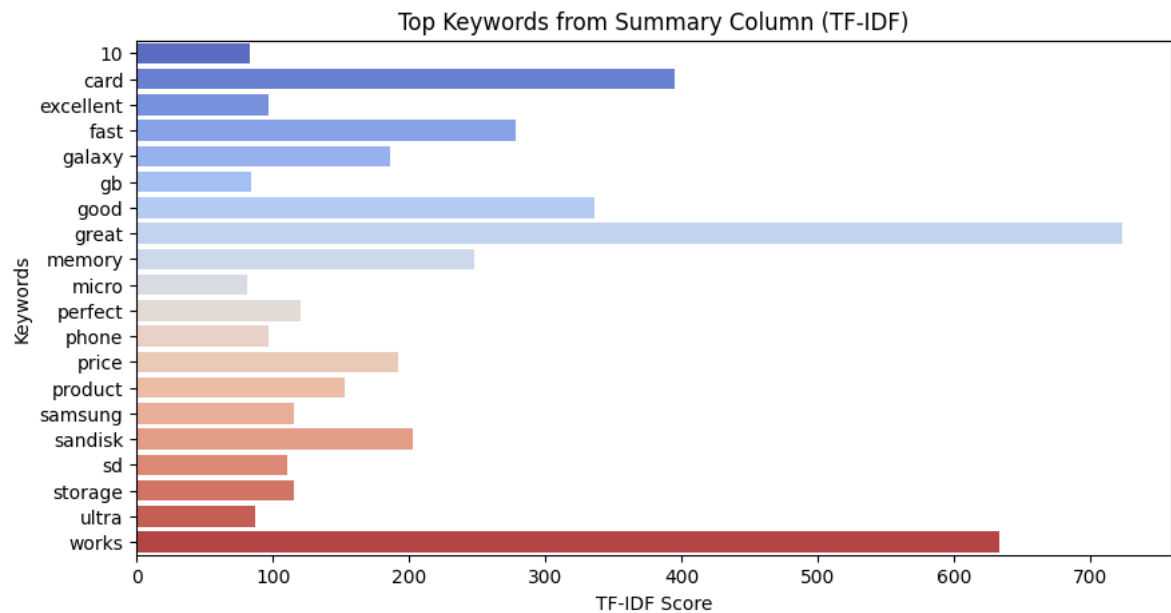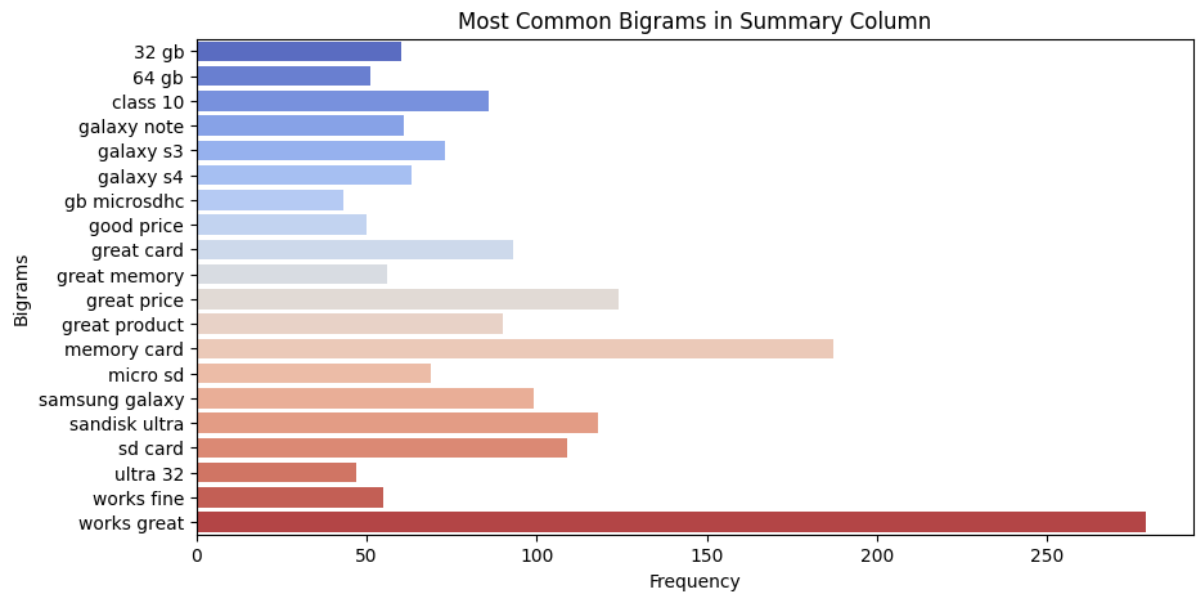- Strengthen **VIP rewards for long-term customers**.
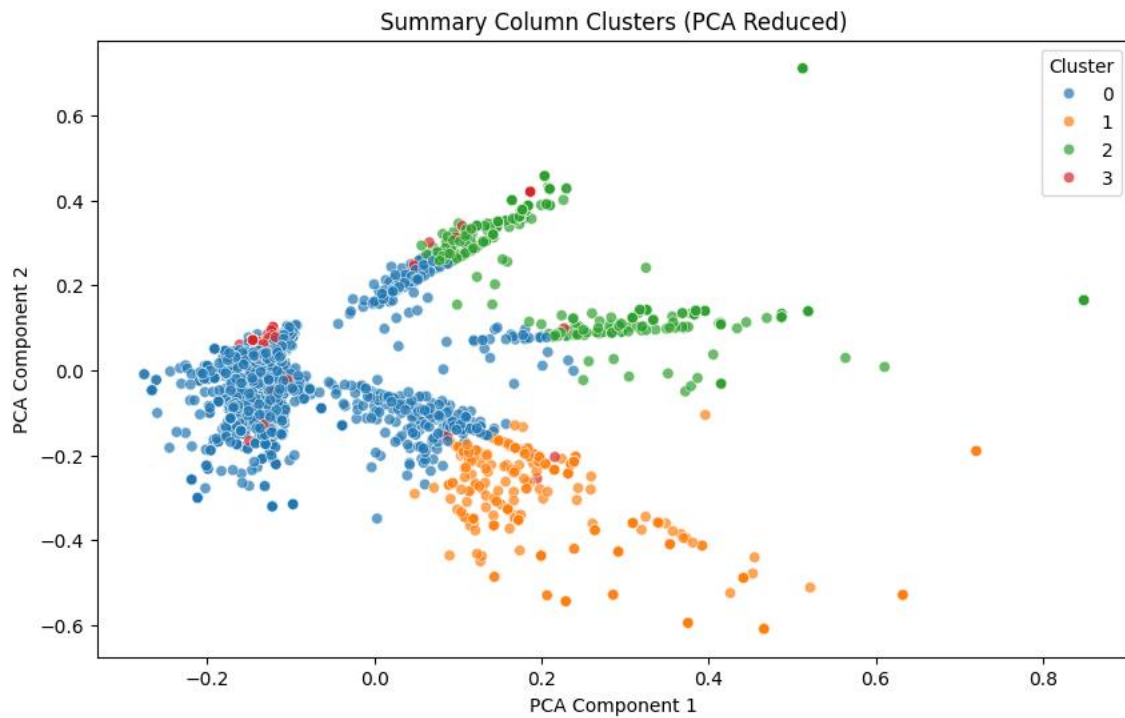

Final Thoughts

By leveraging data-driven insights, businesses can make informed decisions to **maximize sales, optimize profitability, and strengthen customer relationships**. Integrating these findings into long-term strategy ensures **sustained competitive advantage and long-term success**.

Amazon Reviews Clusters (PCA Reduced)

Sentiment Distribution

Distribution of Helpful Votes

Average Helpful Votes by Sentiment

Most Common Words in Summary Column

Most Common Bigrams in Summary Column

Top Keywords from Summary Column (TF-IDF)

Summary Column Clusters (PCA Reduced)

🔍 Top Words in Topics:
📌 Topic 1: advertised, s3, s4, note, phone, fine, samsung, works, perfect, galaxy
📌 Topic 2: expected, memory, reliable, quality, excellent, card, product, price, works, great
📌 Topic 3: microsd, card, 10, storage, best, gb, awesome, stars, ultra, sandisk
📌 Topic 4: small, cards, hero, needed, deal, just, love, nice, gopro, fast
📌 Topic 5: job, months, space, buy, micro, does, memory, sd, card, good

Confusion Matrix - Logistic Regression

Cox Proportional Hazard Model - Impact of Features on Churn

Actual vs Predicted Sales (Linear Regression)