Marketing & Retail Analytics

Understanding Customer Behavior and Segmentation

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Agenda & Executive Summary

- This report aims to provide insights into the buying patterns of customers for an automobile parts manufacturing company based on three years of transactional data. It includes exploratory analysis, customer segmentation using RFM analysis, and recommendations for customized marketing strategies.

Problem Statement

- The automobile parts manufacturing company lacks an in-house data science team and seeks to understand customer buying patterns to enhance marketing strategies and drive sales growth.

About Data

- **Information:** The dataset contains transactional data spanning three years, including order details, customer information, product details, and sales information.

- **Shape:** The dataset comprises multiple columns capturing various aspects of each transaction.Dataset Shape: (2747, 20) This indicates that the dataset contains 2747 rows and 20 columns

Bivariate Analysis
Top 5 Countries by Sales

Key Observations:

- **USA** leads with the highest sales figure, significantly ahead of other countries.

- **Spain** follows with substantial sales but notably lower than the USA.

- **France** and **Australia** have relatively comparable sales figures, although France edges slightly ahead.

- **UK** trails behind the other countries with the lowest sales figure.

Insights:

- The USA market appears to be the most lucrative, warranting further exploration for potential growth opportunities.

- Spain and France show promising sales figures, indicating potential markets for expansion or targeted marketing efforts.

- Australia and the UK, while trailing behind, still represent viable markets, albeit with lower sales compared to the leading countries.

Multivariate Analysis

General Insights:

- The multivariate analysis indicates incremental growth in sales across the studied variables.

- By analyzing multiple factors simultaneously, we've identified patterns of growth that can guide strategic decision-making.

Recommendations:

- **Identify Key Contributing Factors**: Determine the factors contributing most significantly to the incremental sales growth. This could include market trends, consumer behavior changes, or product innovations.

- **Optimize Marketing Strategies**: Tailor marketing efforts to capitalize on identified growth factors. This may involve targeted campaigns, enhanced customer engagement, or new market segment penetration.

- **Invest in Research and Development**: Allocate resources to further explore and innovate in areas driving sales growth. Investing in R&D can lead to the development of new products or services that align with evolving consumer needs and preferences.

Weekly Trends in Sales

▶ **Consistent Upward Trend**: Weekly sales data exhibits a consistent upward trend over the analyzed period, indicating overall growth in sales performance.

▶ **Steady Incremental Increase**: Despite variations in weekly sales figures, the trend line demonstrates a steady incremental increase, suggesting sustained growth in the sales trajectory.

▶ **Seasonal Fluctuations**: While the overall trend is positive, seasonal fluctuations may influence weekly sales performance, highlighting the need for targeted strategies during peak and off-peak periods.

▶ **Identify Peak Weeks**: Analyze weekly data to identify peak sales weeks and leverage these insights to optimize inventory management, marketing campaigns, and resource allocation.

▶ **Monitor for Anomalies**: Continuously monitor weekly sales trends to identify any anomalies or deviations from the incremental growth pattern, enabling timely adjustments and strategic interventions.

Monthly Trends in Sales

Peak Sales Months:

▶ November 2019 and November 2018 emerge as the top-performing months, indicating a consistent trend of high sales during this period.

Strong Performance in Q4:

▶ The prominence of October 2019 and November 2019 suggests strong sales performance during the fourth quarter, possibly influenced by seasonal factors such as holiday shopping events.

Summer Sales Surge:

▶ August 2019 stands out as a high sales month, indicating a potential surge in consumer spending during the summer season, possibly driven by promotions or seasonal trends.

Spring Boost:

▶ May 2020 demonstrates notable sales performance, highlighting a potential trend of increased consumer activity during the spring months, possibly influenced by seasonal product launches or marketing initiatives.

Insights for Planning:

▶ Analysis of highest sale months provides valuable insights for strategic planning, including the allocation of resources, timing of promotions, and inventory management to capitalize on peak sales periods.

Quarterly Trends in Sales

Dominance of Q4 Performance:

▶ 2019Q4 and 2018Q4 emerge as the top-performing quarters, indicating a consistent trend of high sales during the fourth quarter of each respective year.

Strong Finish to the Year:

▶ The prominence of Q4 results suggests a strong finish to the fiscal year, possibly driven by holiday shopping seasons and year-end promotions.

Continued Growth in Q3:

▶ 2019Q3 demonstrates strong sales performance, indicating continued growth and consumer spending momentum leading into the fall season.

Optimistic Start to the Year:

▶ 2020Q1 and 2019Q1 exhibit robust sales performance, signaling an optimistic start to the fiscal year with positive growth trajectories.

Strategic Planning Insights:

▶ Analysis of quarterly sales trends provides valuable insights for strategic planning, including resource allocation, budgeting, and marketing strategies tailored to capitalize on peak sales quarters.

Yearly Trends in Sales

▶ 2019 boasts the highest sales figures, reflecting strong consumer spending throughout the year.

▶ 2018 follows closely behind, indicating continued market growth and stability.

▶ Despite challenges, 2020 still ranks third in sales, showcasing resilience and adaptability.

▶ Analyzing these trends offers insights for strategic planning and resource allocation.

▶ Continuous monitoring of sales data enables businesses to stay responsive to evolving market dynamics.

Sales Across Different Categories

We examined sales performance across different product categories to identify top-selling items and opportunities for marketing strategies
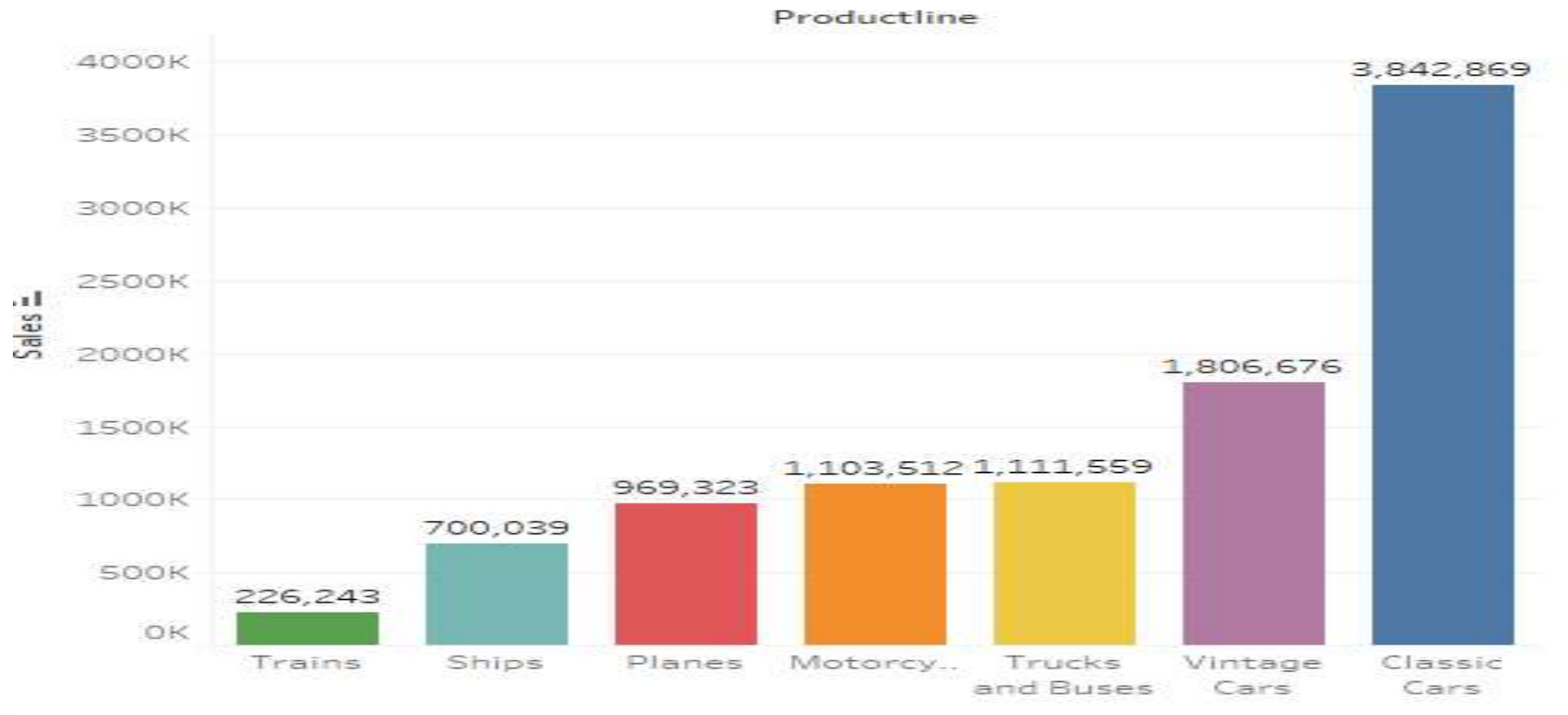
Customer Segmentation using RFM Analysis
What is RFM?

- RFM stands for Recency, Frequency, and Monetary Value. It is a method used for analysing customer value based on their transaction history.

- We used RFM analysis to segment customers based on recency, frequency, and monetary value of their transactions.

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- Based on RFM analysis, we identified segments of customers with different characteristics and behaviors.

Showcase of KNIME Workflow Image
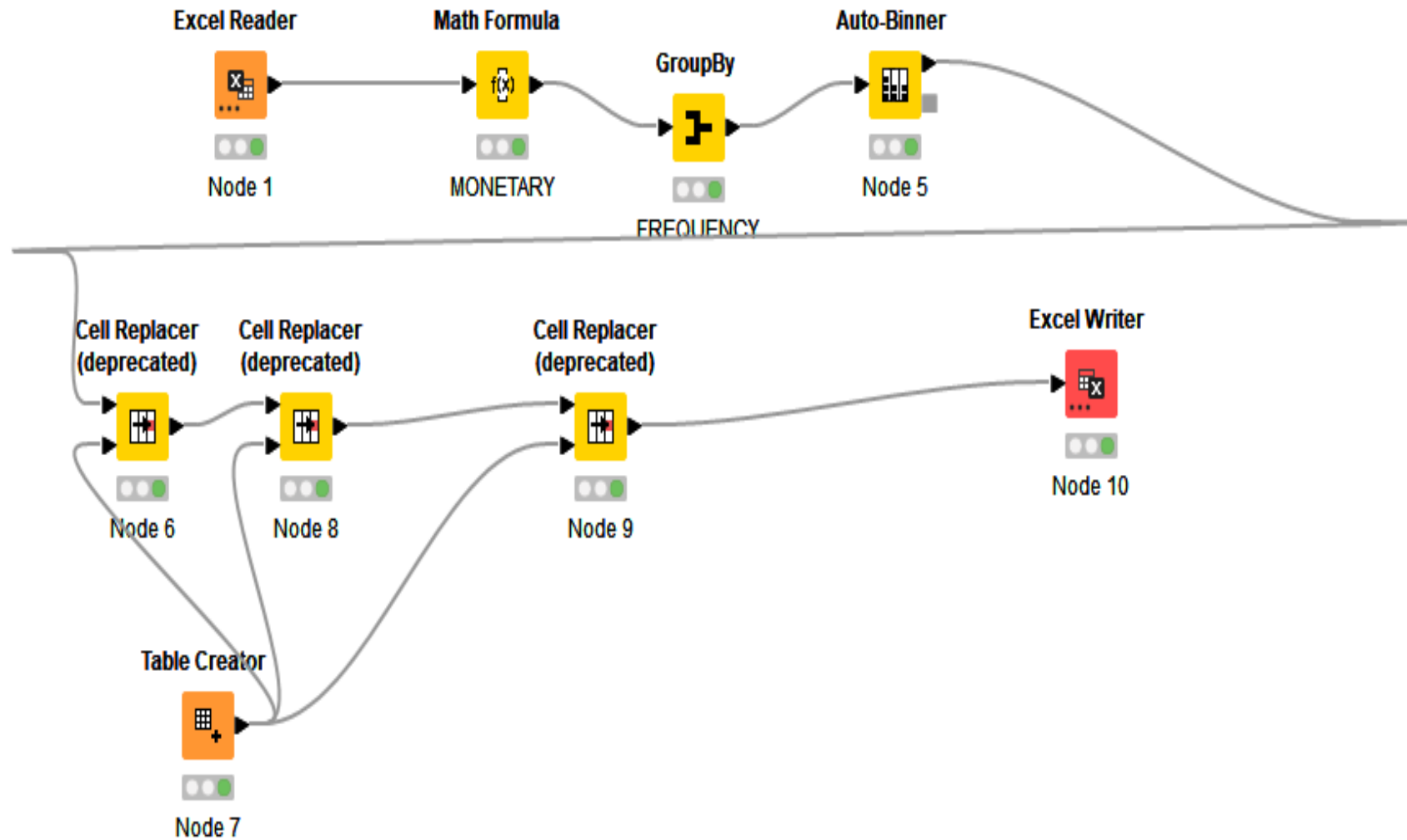
Best Customers (Top 10)

TOP 10 CUSTOMER

Customername	
Mini Caravy	4,233.6
La Corne D'abondance, Co.	4,226.2
Royale Belge	4,180.0
Muscle Machine Inc	4,119.5
Gift Depot Inc.	4,075.8
UK Collectables, Ltd.	4,069.3
Super Scale Inc.	4,674.8
Danish Wholesale Imports	4,028.9
Dragon Souveniers, Ltd.	4,023.0
The Sharp Gifts Warehouse	4,000.3

Lost Customers (Top 10)

LOST COSTUMER

Customername	Frequenc.. Very Low
Alpha Cognac	Abc
Atelier graphique	Abc
Australian Gift Network, ..	Abc
Auto Assoc. & Cie.	Abc
Auto-Moto Classics Inc.	Abc
Bavarian Collectables Imp..	Abc
Boards & Toys Co.	Abc
CAF Imports	Abc
Cambridge Collectables Co.	Abc
Classic Legends Inc.	Abc

Loyal Customers (Top 10)

LOYEL COSTUMER

Customername	Recency ... High
Alpha Cognac	Abc
Atelier graphique	Abc
Australian Collectables, L...	Abc
Australian Gift Network, ...	Abc
Auto Assoc. & Cie.	Abc
Auto-Moto Classics Inc.	Abc
Bavarian Collectables Imp...	Abc
Boards & Toys Co.	Abc
CAF Imports	Abc
Cambridge Collectables Co.	Abc