**DATA SCHOOL**

**TASK 16Bii**

ON

**TECHNICAL REPORT ON PROJECT 2.**

**BY**

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**MODULE 4**

**TECHNICAL REPORT**

**ON**

**KISCO SUPER MART SALES PERFORMANCE ANALYSIS FOR YEAR 2013 AND 2014**

**1. OUTLINE**

This report presents a detailed overview of KISCO Super Mart’s sales performance for the year 2023, 2024 and provides strategic insights to improve business operations in future fiscal years. Outline of the sections covered includes:

* Introduction
* Story of Data
* Data Splitting and Preprocessing
* Pre-Analysis
* In-Analysis
* Post-Analysis and Insights
* Data Visualizations & Charts
* Recommendations and Observations
* Conclusion
* References & Appendices

**2. INTRODUCTION**

This report presents an analytical review of KISCO Super Mart’s sales performance for the years 2013 and 2014. The data-driven insights provided in this report aim to highlight sales trends, profitability, key products, customer segments, and market performance. The dashboard serves as a visual representation of various sales metrics and provides a comprehensive overview of the business's financial health and operational success.

**2.1 Purpose of The Project**

The primary purpose of this sales performance analysis is to:

1. Evaluate the sales performance of KISCO Super Mart across different years, segments, and product categories.
2. Identify the most profitable products and customer segments to drive strategic business decisions.
3. Understand regional revenue contributions and identify key markets for business expansion.
4. Analyze product demand trends over time to improve inventory management and supply chain efficiency.

**2.3. Objectives**

The key objectives of this analysis include:

1. Identifying the year with the highest profit and factors contributing to it.
2. Analyzing sales distribution across various customer segments.
3. Determining the top-performing products based on sales revenue and units sold.
4. Evaluating the revenue contribution of different countries.
5. Understanding seasonal sales trends and product demand fluctuations.
6. Identifying the cost of goods sold (COGS) for each product to assess profitability.

**2.4. Problem being addressed**

Retail businesses, including KISCO Super Mart, face challenges such as:

1. Understanding which products generate the most revenue and profitability.
2. Identifying high-value customer segments.
3. Managing inventory effectively to avoid stock shortages or overstocking.
4. Recognizing seasonal demand patterns to optimize sales strategies.
5. Allocating resources efficiently for market expansion and customer engagement.
6. Controlling costs to maximize profit margins.

**2.5. KEY DATASET AND METHODOLOGIES**

**- Key Dataset**

The dataset used in this analysis comprises:

* Sales revenue data across different years (2013-2014).
* Breakdown of sales by product categories.
* Customer segmentation data, including Government, Small Business, Enterprise, Midmarket, and Channel Partners.
* Country-wise revenue contribution data.
* Units sold for each product.
* Cost of Goods Sold (COGS) for profitability analysis.

**- Methodologies**

The following methodologies were applied in analyzing the data:

1. Data Aggregation: The sales data was compiled and structured to identify key performance indicators (KPIs) such as total revenue, profit, and cost.
2. Trend Analysis: Sales data was analyzed on a month-to-month basis to detect seasonal trends.
3. Comparative Analysis: Sales performance between 2013 and 2014 was compared to understand growth and profit variation.
4. Segment and Product Analysis: Revenue and sales contribution were analyzed across different customer segments and products.
5. Geographical Analysis: Country-wise revenue was examined to determine high-performing regions.
6. Visualization Techniques: Various charts and graphs were used to provide a clear representation of sales performance.

**3.0 STORY OF THE DATA**

**3.1 Data Source**

The dataset was downloaded from **Kaggle.com**, a popular platform for open datasets. The dataset includes transaction details related to product sales, customer segments, revenue, profit, and geographic distribution.

**3.2 Data Collection Process**

The data was likely collected through:

1. Point-of-Sale (POS) Systems: Sales transactions recorded in real time at the checkout points.
2. Enterprise Resource Planning (ERP) Systems: Used to track inventory, sales performance, and customer data.
3. Financial Reports: Accounting records providing revenue and cost data.
4. Customer Relationship Management (CRM) Systems: Used to categorize sales by customer segments.

**3.3. Data Structure**

The dataset is structured to capture various aspects of sales performance:

* Temporal Data: Sales are recorded monthly across two years (2013 and 2014).
* Product Data: Includes sales performance, units sold, and cost of goods sold (COGS) for each product.
* Customer Segments: Sales are categorized by segments such as Government, Small Business, Enterprise, Midmarket, and Channel Partners.
* Geographical Data: Revenue is broken down by country (e.g., USA, Canada, France, Germany, Mexico).
* Financial Metrics: Tracks revenue, highest profit year, and cost analysis.

**3.4. Important Features and Their Significance**

The dataset provides several key insights:

* Year with Highest Profit: 2013 had the highest profit of ₦13,015,237.75, helping identify the best-performing year.
* Top-Selling Product: Paseo recorded the highest revenue and unit sales, highlighting its market demand.
* Customer Segments with Highest Sales: Government purchases were the highest, indicating a strong institutional client base.
* Seasonal Trends: October saw the highest product sales, crucial for demand planning.
* Cost Analysis: Paseo also had the highest Cost of Goods Sold (COGS), indicating that while it generated high revenue, its cost was also significant.
* Top Revenue-Generating Country: The United States of America contributed the most revenue, directing future market expansion strategies.

**3.5. Data Limitations and Biases**

Despite its insights, the dataset has certain limitations:

* **Time Restriction:** The data only covers two years (2013-2014), limiting long-term trend analysis.
* **Lack of External Market Factors:** The dataset does not account for economic conditions, competitor activities, or seasonal promotions affecting sales.
* **Customer Behavior Insights Missing:** While segment data is available, it lacks information on customer preferences, repeat purchases, or satisfaction levels.
* **Possible Reporting Bias:** Sales data might be influenced by promotional campaigns, discounts, or bulk purchases that are not explicitly detailed.

**4 DATA SPLITTING AND PREPROCESSING**

**4.0 Purpose**

Data splitting and preprocessing are critical steps in preparing data for analysis and modeling. The goal is to ensure data quality, remove inconsistencies, and structure the dataset in a way that enables meaningful insights. This process ensures that sales data can be used for reporting, predictive analytics, and decision-making within the food distribution industry.

**4.1 Data Cleaning**

This dataset a cleaned as downloaded from Kaggle.com. However steps were taken to ensure it’s properly cleaned, these includes

1. **Removing Duplicates:** A test to ensure there’s no repeated sales transactions that could distort revenue calculations.
2. **Standardizing Formats:** Ensuring consistent formatting for headings such as dates, currency, and categorical labels (e.g., city names, product categories).
3. **Correcting Inconsistencies:** Resolving data discrepancies, such as different spellings for the same city or missing product names.
4. **Standard Excel Table:** Ensuring the dataset is on standard excel table

**4.2 Handling Missing Values**

None identified – dataset was complete.

**4.3 Data Transformations**

* Aggregated revenue by city, region, and customer
* Grouped sales into transaction amount bands

**4.4 Data Splitting**

1. Dependent data points: Values that can stand alone and influences other points and still make complete meaning. Such as shown above
2. Independent data points: Values that cannot stand alone, influences other points and make complete meaning. Such as shown above

**Category 1: Independent data points –** Segment, Country, Month name, Year, Date

**Category 2: Dependent data -** Unit sold, Discount band, Manufacturing price, Sales price, Gross profit, Discount, Sale, COGS, Profit, Month number

**4.5 Industry Context**

This dataset belongs to the food distribution and sales industry, where companies manage product categories, customer relationships, and sales representatives to drive revenue. Understanding sales performance is crucial for: Inventory management, Demand forecasting, Regional sales strategy, Customer retention and segmentation.

**4.6 Stakeholders**

The key stakeholders who benefit from this analysis include:

1. **Sales Managers:** Optimize sales force allocation and performance monitoring.
2. **Supply Chain & Logistics Teams**: Improve shipping and regional distribution efficiency.
3. **Finance Departments:** Monitor revenue trends and financial performance.
4. **Marketing Teams:** Identify high-value customers and target profitable product categories.
5. **Executive Leadership:** Make data-driven decisions for business growth.

**4.7 Value to the Industry**

Preprocessed and well-structured data unlocks significant value for the food industry:

1. Better decision-making by identifying sales trends and revenue-driving factors.
2. Improved forecasting by enabling predictive models for demand planning.
3. Enhanced customer insights by helping in targeting key customers and improving retention.
4. Operational efficiency by streamlining logistics and inventory management.
5. Competitive advantage by providing a data-driven approach to outperform competitors.

**5. PRE-ANALYSIS**

**Key Trends Identified**

**a. Sales Performance by Year**

* 2014 was the most profitable year, generating a profit of ₦13,015,237.75, compared to ₦3,878,464.51 in 2013.
* This suggests that business conditions in 2013 were less favorable, potentially due to reduced demand, pricing changes, or increased costs.

**b. Customer Segment Contribution**

* Government purchases dominated revenue, contributing ₦52,504,260.67, followed by Small Businesses (₦42,427,918.50).
* Other segments, such as Enterprise, Midmarket, and Channel Partners, accounted for smaller portions of sales, indicating a reliance on institutional and government buyers.

**c. Product Sales Trends**

* Paseo was the best-selling product, with 338,239.5 units sold and ₦4,797,437.95 in revenue.
* Other top-selling products included VTT, Amarilla, Velo, Montana, and Carretera, all of which contributed significantly to total sales.
* Paseo also had the highest Cost of Goods Sold (COGS) at ₦28,213,706.00, which raises questions about its overall profitability.

**d. Monthly Sales Distribution**

* October saw the highest number of units sold (140), followed by December (105), indicating a seasonal trend in demand.
* Sales were relatively stable across the rest of the months, with occasional spikes in May and June.

**e. Regional Revenue Trends**

* The United States generated the highest revenue, followed by Canada, France, Germany, and Mexico.
* This suggests that KISCO’s primary market strength lies in North America and Europe, with room for expansion in other regions.

**5. POTENTIAL CORRELATIONS IDENTIFIED**

From the trends, several key correlations emerge:

**a. Sales Performance and Seasonality**

* The peak in October suggests a seasonal effect influencing demand.
* Possible causes include holiday shopping, government procurement cycles, or end-of-year budget utilization.

**b. Customer Segment and Revenue Contribution**

* The Government sector contributes the most revenue, implying that institutional buyers drive sales volume.
* This reduces reliance on retail consumers but also makes the business vulnerable to policy changes and government budget shifts.

**c. High Sales and High Costs for Paseo**

* Paseo is both the top-selling and most expensive product in terms of COGS.
* This could indicate either a high-margin product strategy or inefficiencies in production costs.
* A further profitability breakdown of Paseo is required to determine its true impact on overall earnings.

**d. Regional Revenue Distribution and Market Strength**

* The United States leads in revenue, suggesting strong demand and effective market penetration.
* Canada, France, Germany, and Mexico also contribute significantly, indicating diversified market reliance.
* Expansion opportunities may exist in other high-potential markets where sales are currently lower.

**5.2.1 INITIAL INSIGHTS**

1. Since government sales dominate revenue, KISCO should prioritize government contracts, compliance, and bulk supply agreements.
2. Exploring new government procurement programs in other countries could increase revenue streams.
3. Paseo’s high COGS requires a review of production, sourcing, and pricing strategies to maximize profit margins.
4. Cost-cutting strategies, such as alternative suppliers or bulk material purchasing, could improve overall profitability.
5. With October showing the highest demand, inventory management should align with seasonal peaks to avoid stockouts.
6. Targeted marketing and promotions before high-demand periods (such as September and early December) can further boost revenue.
7. Reducing reliance on government contracts by growing the Small Business and Enterprise segments can create a more balanced revenue mix.
8. Expanding distribution channels in other promising markets could enhance global sales performance.

**6 IN-ANALYSIS**

**UNCONFIRMED INSIGHTS & AREAS REQUIRING FURTHER VALIDATION**

**a. Year-over-Year Profit Increase (2013 vs. 2014)**

* **Observation:** Profit in 2014 ₦13,015,237.75 was significantly higher than in 2013 ₦3,878,464.51.
* **Unconfirmed Insight:** The increase may be due to reduction in costs, rising sales, or pricing changes.
* **Validation Needed:** 
  + Were there’s cost reduction in raw materials, logistics, or operations between 2013 and 2014?
  + Did any major client or government contract patronized, affecting revenue?

**b. Heavy Dependence on Government Sales**

* **Observation:** The Government sector accounts for ₦52,504,260.67 in revenue, the highest among all customer segments.
* **Unconfirmed Insight:** KISCO may be over-reliant on government contracts, which could be a risk if policies or procurement cycles change.
* **Validation Needed:** 
  + What percentage of total revenue comes from government contracts compared to other segments?
  + Have government purchases been consistent over the years, or are there fluctuations in demand?

**c. Seasonal Demand Peaks in October and December**

* **Observation:** Sales peaked in October (140 units sold) and December (105 units sold).
* **Unconfirmed Insight:** The surge might be linked to holiday shopping, fiscal year-end purchases, or government procurement cycles.
* **Validation Needed:** 
  + Does this trend repeat annually, or was it unique to 2013-2014?
  + Are these sales driven by promotions or natural seasonal demand?

**d. Paseo's High Sales but also High COGS**

* **Observation:** Paseo is the highest-selling product ₦4,797,437.95 revenue but also has the highest Cost of Goods Sold ₦28,213,706.00.
* **Unconfirmed Insight:** High COGS suggests either high production costs or aggressive discounting. This might impact net profitability.
* **Validation Needed:** 
  + What is the actual profit margin on Paseo after deducting COGS and other expenses?
  + Is the pricing strategy for Paseo sustainable, or should it be adjusted?

**e. Market Strength in the United States**

* **Observation:** The United States is the top revenue-generating country (₦25,029,830.17), followed by Canada, France, Germany, and Mexico.
* **Unconfirmed Insight:** KISCO has strong penetration in the US market, but it is unclear if growth opportunities exist in other regions**.**
* **Validation Needed:** 
  + How do market growth rates compare across these regions?
  + Are there opportunities to expand in underperforming markets (e.g., Asia, Africa, or South America)?

**AREAS REQUIRING FURTHER VALIDATION (DATA GAPS & MISSING ANALYSIS)**

**a. Gross Profit and Net Profit Margins for Each Product**

* The dataset does not show net profitability per product after deducting costs.
* A detailed profit margin analysis per product is necessary to determine which products are truly profitable.

**Recommendation:** Create a report showing Revenue - COGS - Other expenses per product.

**b. Customer Segment Loyalty & Purchase Trends**

* Does Government procurement remain stable, or does it fluctuate?
* Are Small Business and Enterprise clients growing over time?

**Recommendation:** Analyze repeat purchase rates and long-term trends for each segment.

**c. Effectiveness of Sales Strategies in Different Regions**

* The dashboard shows regional growth rates over time.
* Are some markets increasing?

**Recommendation:** Compare revenue trends by region from 2013 to 2014 to identify growth areas.

**d. Inventory Management & Supply Chain Analysis**

* With high sales peaks in October and December, does KISCO have sufficient inventory to meet demand?
* Are there supply chain delays affecting sales performance?

**Recommendation:** Conduct a stock availability vs. sales trend analysis.

**7. POST-ANALYSIS AND INSIGHTS**

**7.1 key findings and comparison with initial findings**

**A. Profitability & Sales Trends**

* 2014 profit (₦13,015,237.75) was significantly higher than 2013 (₦3,878,464.51)
* Government sales remain the highest revenue contributor (₦52.5M), followed by Small Businesses (₦42.4M).
* Sales peaked in October (140 units) and December (105 units), suggesting strong demand during these months.

**B. Product Performance Analysis**

* Paseo generates the highest revenue (₦4.79M) but also has the highest Cost of Goods Sold (₦28.2M).
* VTT (₦3.03M revenue, ₦17.4M COGS) and Velo (₦2.30M revenue, ₦15.9M COGS) have more balanced cost structures than Paseo.

**C. Market & Regional Performance**

* The US accounts for the highest revenue (₦25M), followed by Canada, France, Germany, and Mexico.
* Mexico contributes a substantial portion of revenue (₦24.3M), closely competing with Canada and Germany.

**D. Sales Segmentation & Customer Insights**

* Government remains the largest revenue contributor, but Small Business sales are substantial (₦42.4M).
* Midmarket (₦2.3M) and Channel Partners (₦1.8M) contribute minimal revenue compared to other segments.

**INSIGHTS**

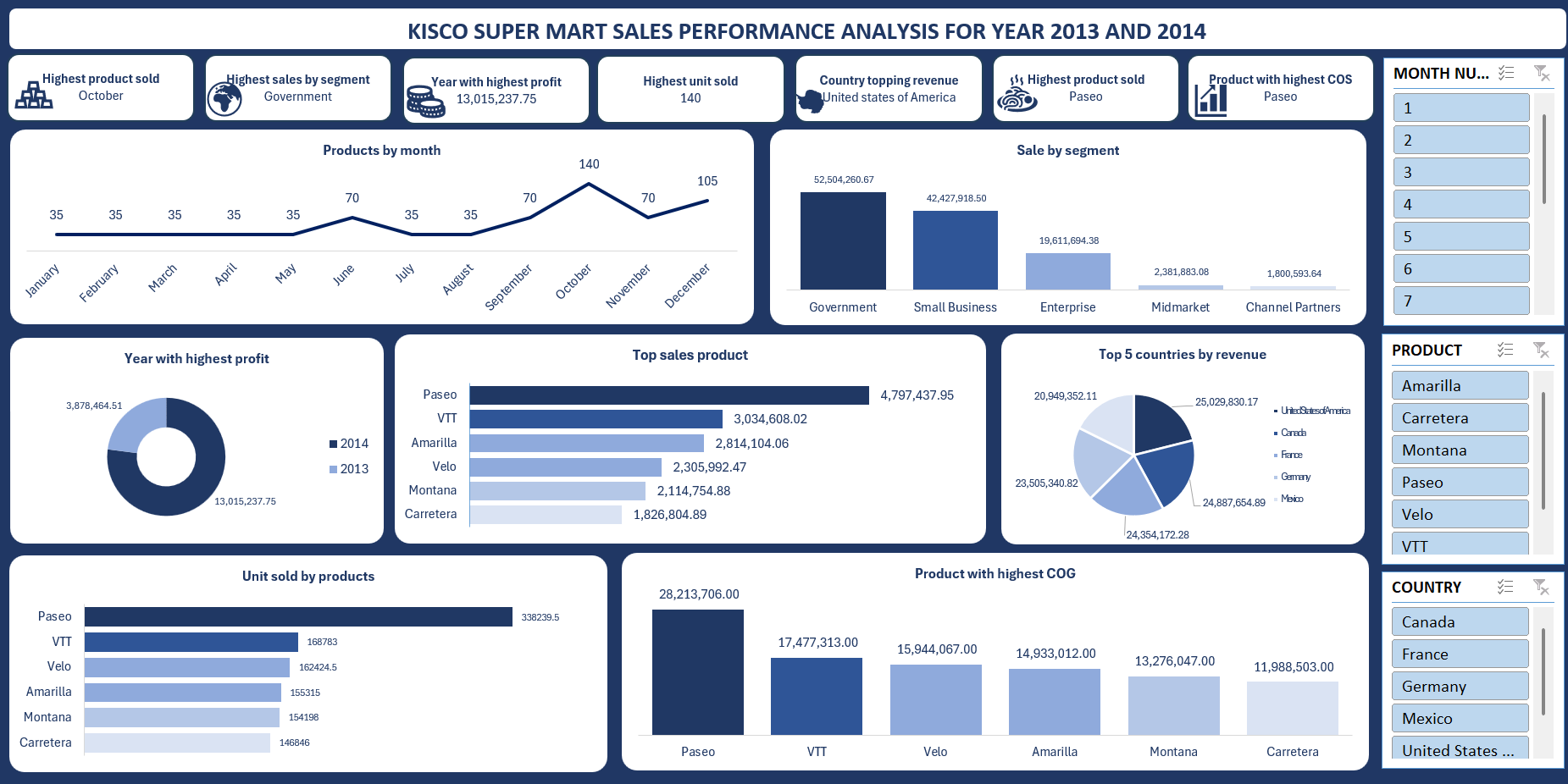
* Heavy reliance on government contracts creates business risk if policies change or demand fluctuates.
* There is a sharp increase in profitability, which may be attributed to decreased costs, higher margins, or increase sales volume.
* This segment has growth potential and should be prioritized to diversify revenue streams.
* These segments remain underutilized, representing an opportunity for expansion.
* Strong seasonal demand—marketing & inventory should be optimized for these months.
* Despite high sales volume, profitability is likely low due to high costs.
* These products have a better balance between revenue and costs than Paseo
* North America remains the core market, but Mexico shows potential for expansion.
* Investing in Mexico could yield significant returns.

**8. DATA VISUALIZATIONS & CHARTS**

**8.1 Charts overview**

* **Sales by Segment**
* **Top 5 Countries by revenue**
* **Top sales product**
* **Year with highest profit**
* **Highest product sold by month**
* **Product with highest COG**
* **Top unit of products sold**

**FINAL DASHBOARD**



**9. Recommendations and Observations**

**9.1 OBSERVATION**

The following observations were made in course of the analysis:

1. 2014 had a significantly higher profit than 2014. 2014 profit: ₦13,015,237.75, 2013 profit: ₦3,878,464.51
2. Government sector is the largest revenue contributor, having ₦52.5m in revenue, significantly higher than other segments.
3. Small business sales show growth potential small businesses contributed, having ₦42.4m, the second-largest segment after the government.
4. Enterprise, midmarket & channel partner sales are low enterprise, having ₦19.6m, midmarket: ₦2.3m, channel partners: ₦1.8m.
5. October and December are peak sales months October: 140 units sold, December: 105 units sold (compared to ~35 units in other months).
6. Paseo is the best-selling product but has the highest cogs revenue with ₦4.79m, COGS: ₦28.2m, highest unit sales.
7. VTT and VELO offer better profitability potential. VTT (₦3.03m revenue, ₦17.4m COGS) and VELO (₦2.3m revenue, ₦15.9m COGS)
8. The United States is the top revenue contributor, having ₦25m, followed by Canada, France, Germany, and Mexico.
9. Mexico is a strong emerging market ₦24.3m in revenue, closely competing with Canada & Germany.

**9.2. Final Recommendations**

1. Reduce reliance on government contracts. Strengthen small business & enterprise market penetration.
2. Optimize paseo’s cost structure, negotiate supplier costs or explore alternatives to lower production expenses.
3. Focus on high-margin products (VTT & VELO). Shift marketing and promotions towards these products.
4. Capitalize on seasonal demand. Boost inventory and promotions in October & December.
5. Expand into the Mexican market. Develop market-specific strategies and distribution networks.
6. Improve performance in enterprise, midmarket & channel partner segments. Conduct targeted market research and create customized sales strategies.
7. The high revenue generation shows a massive increase of sales and improvement in good marketing strategy. Continue the effective marketing strategies to sustain the profitability growth
8. The spikes in June, September, November, October, and December suggest seasonal demand or production capacity changes. Identify factors influencing these fluctuations. Also, Strategies such as promotions, discounts, or improved marketing can be applied in months with lower counts (January–May, July–August)
9. Since Paseo has the highest COGS, and highest revenue to justify the cost. We may also consider adopting cost-cutting strategies to reduce the cost. Montana and Carretera have the lowest COGS, they also have lower sales volumes, marketing and promotional strategies should be considered to improve their performance

**10 CONCLUSIONS**

The 2023 and 2024 Performance Analysis for KISCO Super Mart, highlights significant strengths in sales performance while also identifying key areas that require improvement. The data-driven insights emphases KISCO Super Mart has a strong reliance on Government sales, which presents a risk if funding policies change, Paseo, despite being the highest-selling product, has the highest cost of sales, impacting overall profitability. Small Business and Emerging Markets (Mexico) present the most promising growth opportunities

**Key Learning:**

**A. Sales and Revenue Insights**

* The Government segment contributed ₦52.5M, making it the largest revenue generator. Heavy dependence on government contracts creates instability if policies or funding change.
* Small Business is a Growing Opportunity With ₦42.4M in revenue, this segment has high potential for growth. Expanding in this sector will reduce reliance on government sales.
* Enterprise, Midmarket & Channel Partner Segments are Underutilized. These sectors generate much lower revenue despite potential. Sales and marketing strategies should target these segments for higher revenue.
* Paseo is the Best-Selling Product but Least Profitable. Paseo has the highest sales volume (338,239 units) but also the highest cost of sales (₦28.2M). Reduce cost of goods sold (COGS) or shift focus to more profitable products.
* VTT and Velo Show Better Profitability Potential. These products have a better balance between revenue and costs than Paseo. Promote these products more aggressively.
* October and December are Peak Sales Months. Sales spike in October (140 units) and December (105 units). Increase inventory, marketing, and promotions for these peak months.
* United States is the Top Market. Contributed ₦25M in revenue, followed by Canada, Germany, France, and Mexico. Maintain strong presence while diversifying into other regions.
* Mexico Shows Emerging Market Potential With ₦24.3M in revenue, Mexico has high potential for growth. Expand operations in Mexico through targeted marketing.

**Future Research Areas**

* Investigate net profit margins per product to understand the true profitability.
* Conduct price elasticity research to find the best pricing model for maximizing both revenue and profit.
* Study market demand in Mexico, France, and Germany to assess the potential for expansion.
* Review supplier contracts and find ways to reduce cost of goods sold (COGS) for high-cost products.
* Explore new customer segments (retail, online, direct-to-consumer sales).

**11. REFERENCES & APPENDICES**

* References
* Internal Sales Database
* Microsoft Excel Documentation
* Kaggle.com

**APPENDICES**

* Full Dashboard Screenshots
* Pivot Table Configurations
* Formula List (e.g., SUMIFS, VLOOKUP examples)