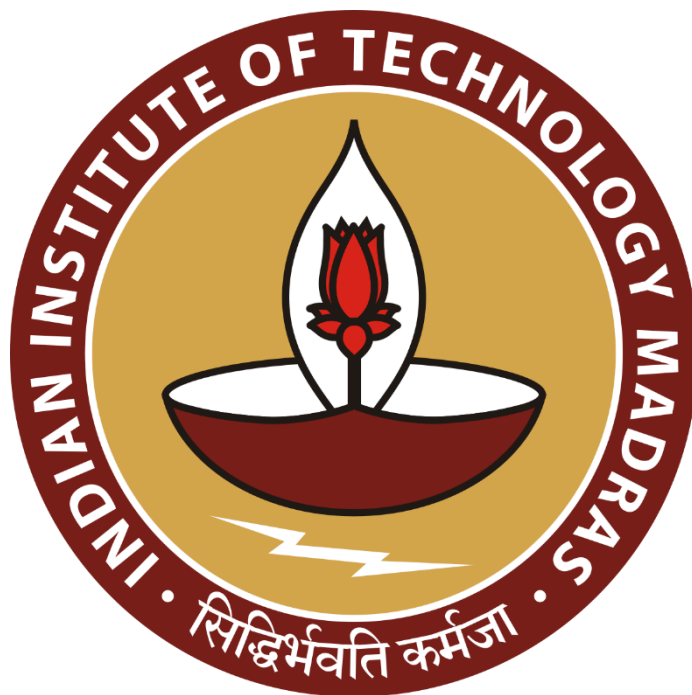# Smart FMCG Distribution: Predictive Analytics and Optimization for Enhanced Inventory and Order Management

A Final report for the BDM capstone Project

Submitted by

Name: Utkarsh Shukla

Roll number: 21F2001497

IITM Online BS Degree Program,

Indian Institute of Technology, Madras, Chennai

Tamil Nadu, India, 600036

Contents

Declaration Statement

I am working on a Project titled "**Smart FMCG Distribution: Predictive Analytics and Optimization for Enhanced Inventory and Order Management**". I extend my appreciation to **R L ASSOCIATES**, for providing the necessary resources that enabled me to conduct my project.

I hereby assert that the data presented and assessed in this project report is genuine and precise to the utmost extent of my knowledge and capabilities. The data has been gathered from primary sources and carefully analyzed to assure its reliability.

Additionally, I affirm that all procedures employed for the purpose of data collection and analysis have been duly explained in this report. The outcomes and inferences derived from the data are an accurate depiction of the findings acquired through thorough analytical procedures.

I am dedicated to adhering to the principles of academic honesty and integrity, and I am receptive to any additional examination or validation of the data contained in this project report.

I understand that the execution of this project is intended for individual completion and is not to be undertaken collectively. I thus affirm that I am not engaged in any form of collaboration with other individuals, and that all the work undertaken has been solely conducted by me. In the event that plagiarism is detected in the report at any stage of the project's completion, I am fully aware and prepared to accept disciplinary measures imposed by the relevant authority.

I understand that all recommendations made in this project report are within the context of the academic project taken up towards course fulfillment in the BS Degree Program offered by IIT Madras. The institution does not endorse any of the claims or comments.

Signature of Candidate: (**Digital Signature**)

Name: Utkarsh Shukla

Date: 17-11-2024

1.   Executive Summary

This project focused on optimizing FMCG distribution operations for R.L. Associates through advanced analytics and inventory management solutions. The analysis utilized 6 months of Transactions ledger data and 12 months of sales data (April 2023 to March 2024) from five manufacturers: FLAMMINGO, SNAPIN, OETKER, HAPPILO, and INSIGHT.

R.L. Associates, established in 2018 in Kanpur, operates as a key FMCG super stockist connecting major manufacturers like Snapin, Insight, and Flamingo with over 200 distributors. The company manages bulk purchasing, warehousing, and distribution, serving as a vital link in Kanpur's FMCG supply chain.

The project implemented three key solutions: First, an Early Warning System was developed to classify products based on expiry risk, enabling proactive inventory management and waste reduction. Also ABC Analysis was conducted to categorize inventory items based on their value contribution, with Class A items (top 20%) accounting for 80% of value requiring stringent control.

Second, The study also included distributor segmentation using K-means clustering, categorizing distributors into high-value (₹44,061-₹94,500), medium-value (₹16,331-₹42,648), and low-value (₹1-₹15,347) segments. This segmentation enables targeted relationship management strategies.

And Third, predictive analytics using SARIMA modeling was implemented to forecast sales for each manufacturer. Notable findings included FLAMMINGO's stable performance, HAPPILO's sudden growth spike, INSIGHT's exponential growth followed by stabilization, OETKER's concerning decline, and SNAPIN's cyclical patterns.

The project concluded with comprehensive recommendations for inventory management, distributor relationship strategies, and operational excellence initiatives to enhance overall business performance.

2.   Detailed Explanation of Analysis Process/Method

FILES USED : "Excel Workbook of Monthly Sales Data from April 2023 to March 2024" and "Financial Ledger consisting Transactions for 6 months"

TOOLS USED :

- Python: Core programming language for implementation
- Pandas: Data manipulation and analysis
- Matplotlib: Data visualization and plotting
- SARIMA: Seasonal time series forecasting tool
- Scikit-learn: Machine learning library for Linear Regression
- NumPy: Numerical computing and array operations
- K-means clustering : For creating insightful clusters
- Excel File Handling: pandas ExcelFile (As its workbook) for data import.

DATA STRUCTURE :

R L Associates works with 5 manufacturers: FLAMMINGO, SNAPIN, OETKER, HAPPILO, and INSIGHT. Each manufacturer has a dedicated sheet. The dataset for each sheet includes item information (product name/identifier), monthly units sales data (Apr 2023 to Mar 2024), and summary metrics (total quantity and value sold).

PROBLEM : OPTIMIZATION FOR ENHANCED INVENTORY :

SOLUTION (i): EARLY WARNING SYSTEM

Due to the absence of any Expiry tracking system in Organisation, an alternative Early Warning System is developed to tackle Expiry risk. The Early Warning System (EWS) is

designed to classify products based on their expiry risk and prioritize interventions for those at higher risk. Below is a step-by-step explanation of its logic and functioning:

1. **Sales Metrics Calculation**:
   - **Annual Units Sold**: Total units sold across all months are calculated.
   - **Monthly Average Units**: The average sales per month is derived by dividing annual sales by 12.
   - **Recent Units Sold**: Sales from the last three months (e.g., January, February, and March) are summed to identify recent performance.
   - **Sales Variation**: The standard deviation of monthly sales is divided by the monthly average units (plus one to avoid division by zero) to measure consistency.
2. **Risk Classification**:
   - **Critical Risk**: Products with zero annual units sold or zero recent sales are flagged as critical, requiring immediate review.
   - **High Risk**: Products with low monthly averages, high sales variability, or declining recent sales are classified as high risk.
   - **Low Risk**: Products demonstrating stable or growing recent sales and low variability are deemed stable.

The EWS ensures systematic identification of at-risk products, enabling businesses to mitigate financial losses and optimize inventory levels effectively.

Analyzed sales variability, recent sales activity, and annual performance to classify products by expiry risk. Specific metrics include:

- **Sales Variability**: Measured as the standard deviation of monthly sales divided by the monthly average.
- **Recent Sales Activity**: Sum of sales in the last three months to assess recent demand patterns.
- **Annual Performance**: Total sales over the year to evaluate overall product demand.

Thresholds applied for classification:

- **Critical Risk**: Products with zero annual or recent sales.

- **High Risk**: Products with monthly average sales below 5 units or sales variability greater than 1.
- **Low Risk**: Products with stable or growing recent sales and low variability (< 0.5).

SOLUTION (ii) : STRATEGIC INVENTORY MANAGEMENT (A PROBLEM-SOLVING APPROACH USING ABC ANALYSIS)

Class A (Critical Items)

- Top 20% of items
- High-value items (top 80% of the cumulative value).
- Represents approximately 80% of total value
- Requires stringent control and monitoring

Class B (Intermediate Items)

- Next 30% of items
- Moderate-value items (next 15%)
- Represents approximately 15% of total value
- Needs moderate control

Class C (Trivial Items)

- Remaining 50% of items
- Low-value items (remaining 5%).
- Basic control systems sufficient

    Data Sorting: The first step in the analysis was to sort the items by their *Total Value* in descending order. This enables the identification of high-value items that are the most significant contributors to overall sales.

    Cumulative Value Calculation: Next, the cumulative value was calculated. This involves summing the *Total Value* for each item progressively, creating a running total that shows how much of the total sales value is represented by each successive item.

Cumulative Percentage Calculation: To facilitate the classification, the cumulative value was converted into a cumulative percentage. This allows us to identify the percentage contribution of each item to the overall sales.

Item Classification:

- ○ Class A: Items contributing to the top 80% of cumulative sales value.
- ○ Class B: Items contributing to the next 15% of cumulative sales value.
- ○ Class C: Items contributing to the final 5% of cumulative sales value.

Challenges and Solutions

- **Large Number of Items:** When dealing with large datasets, it is easy to encounter issues with overloading plots and losing clarity. To mitigate this, we focused on the top 50 items by total sales value for visualization purposes. This reduced the complexity and made the plots more interpretable.
- **Data Clarity:** Some of the plots became messy due to the large number of small-value items. To address this, we aggregated data into ABC categories for easier interpretation. Additionally, a log scale was avoided in favor of presenting clear bar charts that represent the actual values.

Visualization

- **Bar Plots:** A bar plot was used to visualize the total value of the top items, with color coding for each ABC category (red for Class A, yellow for Class B, and green for Class C). This plot allows easy identification of high-value items that require more attention.
- **Cumulative Percentage Plot:** Another plot was created to visualize the cumulative percentage for each item. This plot shows how the cumulative percentage increases as we move down the list of items. Thresholds were marked at 80% and 95%, indicating the boundaries between Class A, B, and C items.
- **Aggregated Category Plot**: To further summarize the results, the total value was aggregated by ABC categories. This provides a clear overview of how much value each category contributes to the overall sales, helping to identify which classes require the most attention in terms of inventory management and business strategy.

The ABC classification results allow businesses to make data-driven decisions regarding inventory control, sales forecasting, and strategic planning.

Effective inventory management is crucial for maintaining operational efficiency and cost control. This solution presents a systematic problem-solving approach to inventory management using ABC analysis, a proven method for categorizing and prioritizing inventory items based on their relative importance.

PROBLEM : DISTRIBUTOR SEGMENTATION USING TRANSACTIONS LEDGER

This project aimed to analyze and segment distributors based on their debit patterns using K-means clustering analysis. The segmentation provides insights into distributor spending behaviors and helps identify distinct groups for targeted business strategies.

The analysis aims to segment distributors based on their debit values using the K-means clustering algorithm. This segmentation can help in understanding different distributor behaviors and tailoring strategies accordingly.

Methodology:

1. **Data Preparation:**
   ○ The dataset containing distributor particulars and debit values is loaded.
   ○ Outliers are identified and removed using the Interquartile Range (IQR) method to prevent them from skewing the cluster formation.
   ○ The debit values are scaled using StandardScaler to ensure that features with larger values don't disproportionately influence the clustering.

2. **Determining Optimal Clusters (k):**
   ○ The Elbow method is employed to determine the optimal number of clusters (k). This method analyzes the within-cluster sum of squares (inertia) for different values of k and suggests the value where the inertia starts to decrease less rapidly (the "elbow" point). In this case, the optimal k is determined to be "3".

3. **K-means Clustering:**
   - The K-means algorithm is applied to the scaled debit values, grouping distributors into 3 clusters.
   - Each distributor is assigned to the cluster whose centroid (mean) is closest to its debit value.

4. **Cluster Analysis and Insights:**
   - Visualizations like scatter plots are used to understand the distribution of distributors across clusters and the debit value patterns within each cluster.
   - Cluster statistics, including average debit range, minimum, maximum, and sample distributors, are calculated to provide insights into the characteristics of each cluster.
   - Descriptive insights are added to interpret the clusters (e.g., high-value distributors, regular payers, etc.).

PROBLEM : PREDICTIVE ANALYTICS :

In this project, we applied predictive analytics to forecast the sales of five manufacturers that R.L. Associates collaborate with, namely FLAMMINGO, SNAPIN, OETKER, HAPPILO, and INSIGHT. The objective was to enhance inventory management and optimize order placement by leveraging advanced forecasting techniques.

(12 MONTH DATA CAN'T GIVE THE PRECISE PREDICTION BUT HERE OUR AIM IS TO DEVELOP A TOOL WHICH, WHEN DEALS WITH 3-4 YEARS OF DATA, CAN GIVE VERY CLOSE PREDICTIONS. SO PURPOSE FOR 12 MONTH DATA IS TOOL NOT PREDICTIONS ITSELF)

This analysis examines the sales forecasting results for five manufacturers - SNAPIN, OETKER, INSIGHT, HAPPILO, and FLAMMINGO - using SARIMA (Seasonal ARIMA)

modeling on 12 months of historical data (April 2023 - March 2024) to predict sales for the next three months.

The SARIMA model implementation consists of several interconnected analytical components:

1. **Fundamental Model Structure** A complex time series forecasting framework combining both seasonal and non-seasonal patterns through autoregression, integration, and moving averages. This triple-layer approach enables the model to capture short-term fluctuations while accounting for longer-term seasonal variations across the twelve-month business cycle.

2. **Non-Seasonal Component Integration** The model employs three critical elements for baseline forecasting:
   - Autoregression: Analyzes how past sales values influence current sales, capturing momentum and trends in the data
   - Integration: Addresses non-stationarity by differencing the data to achieve consistent statistical properties
   - Moving Average: Incorporates past prediction errors to improve future forecast accuracy

3. **Seasonal Pattern Recognition** The seasonal component operates as a higher-order structure that identifies and projects recurring patterns in the data. This is particularly vital for retail sales analysis, where monthly and quarterly patterns significantly impact business performance. The model captures these patterns through seasonal differencing and correlation analysis.

Statistical Processing and Validation

1. **Stationarity Analysis Protocol** Implementation of the Augmented Dickey-Fuller test serves as the cornerstone of our statistical validation process. This comprehensive analysis examines the time series for constant statistical properties, ensuring the data meets the fundamental requirements for accurate forecasting. When non-stationarity is detected, an iterative differencing process transforms the data while preserving essential information patterns.

2. **Model Fitting and Parameter Optimization** The fitting process employs multiple statistical criteria:

- ○ Akaike Information Criterion (AIC): Evaluates model quality while penalizing excessive complexity
- ○ Bayesian Information Criterion (BIC): Provides an additional complexity check with stronger penalties
- ○ Residual Analysis: Ensures model assumptions are met through distribution normality checks and autocorrelation testing

3. **Forecast Generation and Uncertainty Analysis** The forecasting process extends three months beyond the historical data, incorporating:
   - ○ Pattern Recognition: Utilizes identified seasonal and trend components
   - ○ Confidence Intervals: Provides range estimates for more informed decision-making
   - ○ Error Analysis: Quantifies uncertainty in predictions through statistical measures

Implementation Framework

1. **Data Visualization Architecture** The visualization system presents three critical data streams:
   - ○ Historical Sales Trends: Original, unmodified sales data
   - ○ Processed Data: Stationary transformed series used in modeling
   - ○ Forecast Projections: Future predictions with confidence intervals

2. **Quality Control Systems** A comprehensive quality assurance framework includes:
   - ○ Automated Error Detection: Identifies anomalies in data processing
   - ○ Validation Checkpoints: Ensures accuracy at each processing stage
   - ○ Documentation Protocol: Maintains detailed records of all transformations and decisions

3. **Methodological Limitations and Considerations** Several key constraints influence the model's application:
   - ○ Time Horizon Limitations: Twelve-month historical data restricts long-term pattern recognition
   - ○ Linear Modeling Constraints: May not fully capture complex market dynamics
   - ○ External Factor Integration: Limited ability to directly account for market conditions and competitive actions

Practical Implementation

1. **Data Processing Pipeline** A structured approach to data handling includes:
   ○ Initial Data Cleaning: Removes anomalies and standardizes formats
   ○ Aggregation Processing: Consolidates product-level data into meaningful time series
   ○ Transformation Protocol: Applies necessary statistical transformations while preserving data integrity

2. **Output Generation and Interpretation** The final output provides actionable insights through:
   ○ Detailed Time Series Plots: Visualize historical patterns and predicted trends
   ○ Statistical Summary Reports: Document model performance and reliability metrics
   ○ Confidence Interval Analysis: Quantifies prediction uncertainty for decision-making

This structured methodology provides a robust framework for sales forecasting while maintaining statistical rigor and practical applicability. The approach balances sophisticated statistical analysis with clear, interpretable results, making it valuable for both technical and business stakeholders.

3. Results and Findings

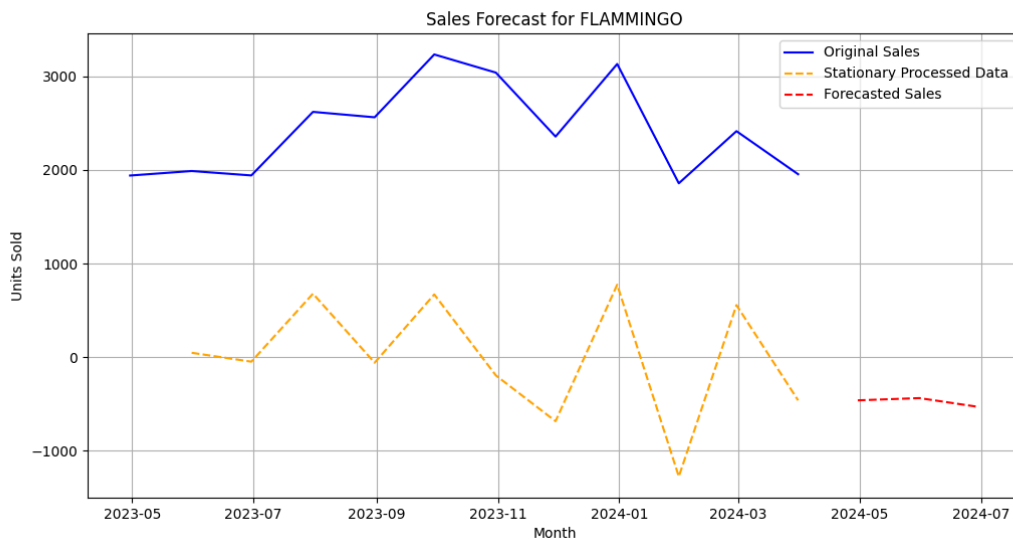## RESULTS FOR PREDICTIVE ANALYTICS :

☐ FLAMMINGO :

IMAGE 3.1 : Flammingo Predictions

- The company demonstrates remarkable stability, maintaining sales consistently between 2,000-3,000 units throughout the period, suggesting a well-established market position and effective business model.

- Peak performance occurred in January 2024 at approximately 3,200 units, indicating seasonal strength in the post-holiday period, similar to patterns seen in other manufacturers.

- The forecasting model predicts a slight decline and stabilization, but with minimal volatility, suggesting continued steady performance rather than any dramatic changes.

- The company shows regular cyclical patterns with predictable peaks and troughs, making it potentially the most reliable for inventory planning and resource allocation.

- The processed data shows consistent volatility patterns throughout the year, indicating stable market dynamics and suggesting effective risk management practices.
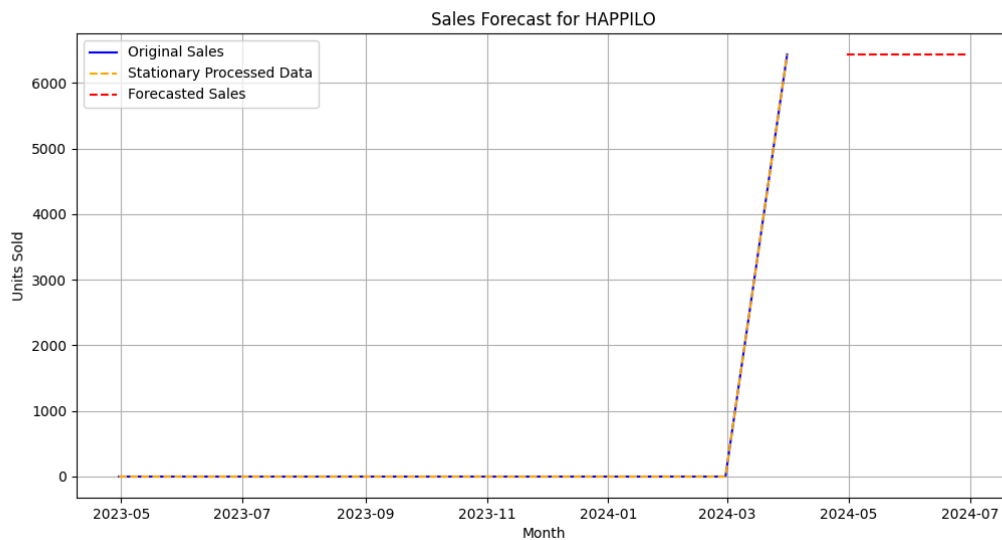
☐ HAPPILO :

IMAGE 3.2 : Happilo Predictions

- The company shows a remarkable transformation in March 2024, with sales suddenly spiking from near-zero to approximately 6,000 units, representing the most dramatic short-term growth among all manufacturers.

- Prior to March 2024, the company maintained consistently low sales volumes, suggesting either a new product launch, market entry, or significant business model pivot at that time.

- The forecasting model predicts sustained high sales levels, indicating confidence in the sustainability of the recent growth, though such dramatic changes typically require careful monitoring.

- The minimal historical volatility before March 2024 suggests either strategic planning for the growth phase or a complete business model transformation.

- The company represents the most intriguing future case study, as the sustainability of its sudden growth will be a critical test of either market strategy or product viability.
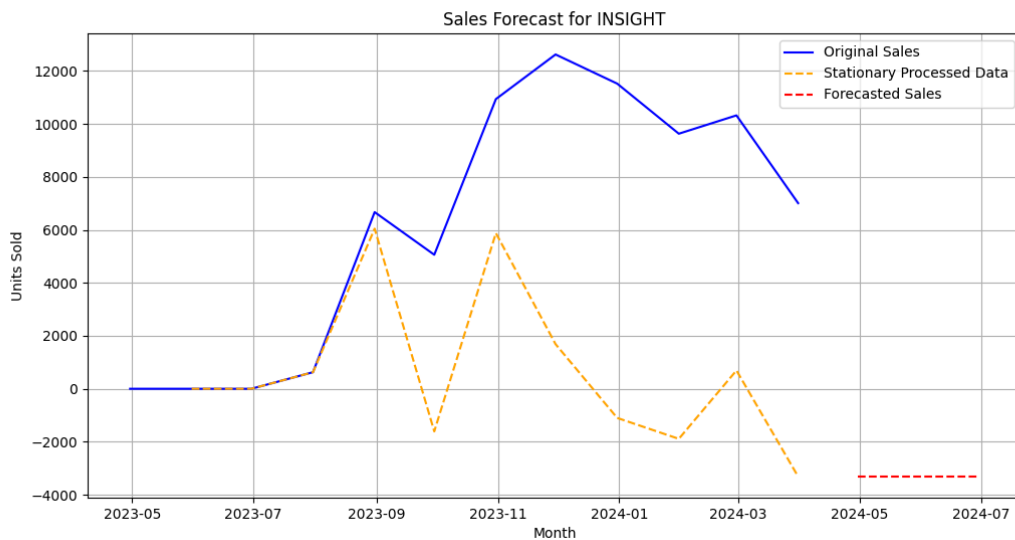
☐ <u>INSIGHT</u> :

IMAGE 3.3 : Insight Predictions

- The company shows remarkable growth transformation, starting from near-zero sales and reaching approximately 12,000 units by late 2023, representing the most dramatic positive growth story among all manufacturers.

- A significant inflection point occurs around September 2023, where sales began exponential growth, suggesting a possible successful product launch or market strategy implementation.

- The forecasting model suggests a stabilization at around 3,000 units, indicating a potential market equilibrium point after the explosive growth phase, though this is significantly lower than peak performance.

- High volatility in the processed data (orange line) after the growth phase indicates unstable market dynamics, suggesting the need for robust risk management strategies.

- The company demonstrates strong market adaptability, evidenced by its ability to scale from minimal sales to significant volumes within months, though maintaining these levels appears challenging.
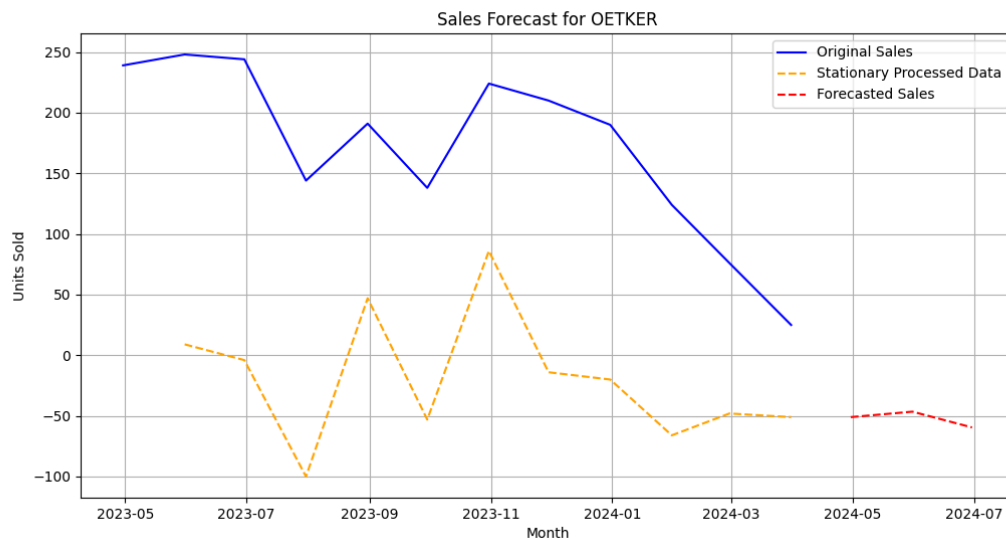
☐ OETKER :

IMAGE 3.4 : Oetker Predictions

- The company exhibits a concerning long-term decline, starting from approximately 250 units in early 2023 and dropping to around 50 units by early 2024, suggesting serious structural challenges in the business model or market position.

- Despite the overall decline, OETKER shows consistent seasonal fluctuations with noticeable peaks in November-December 2023, indicating some residual seasonal strength that could be leveraged.

- The forecasting model predicts stabilization around 50 units for the upcoming months, suggesting the decline might be bottoming out, though at a significantly lower level than historical performance.

- The stationary processed data shows decreasing volatility over time, indicating that while sales are declining, they're becoming more predictable, which could aid in inventory management.

- The company demonstrates the most consistent trend among all manufacturers (albeit negative), making it potentially more predictable for planning purposes despite the challenging situation.
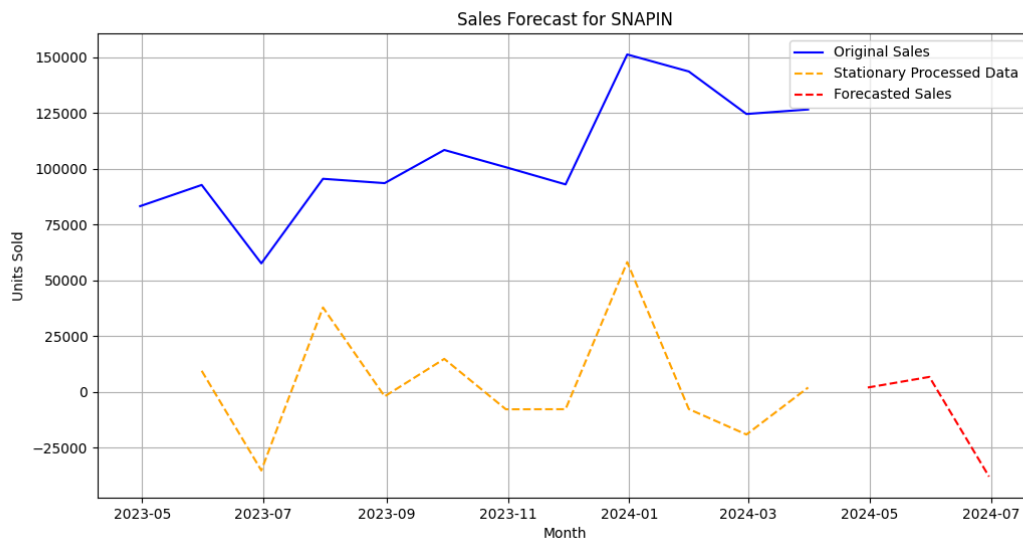
☐ SNAPIN

IMAGE 3.5 : Snapin Predictions

- The forecasted downward trend for April-June 2024 suggests a potential correction phase, with sales expected to stabilize around 125,000 units, which is still significantly higher than the previous year's average.
- The company shows a clear cyclical pattern with troughs typically occurring in July (dropping to around 60,000 units in July 2023), which could be crucial for inventory planning and resource allocation.
- The processed stationary data (orange line) shows increasingly volatile swings, particularly after September 2023, indicating growing market dynamics and potentially increasing business complexity.

ABC ANALYSIS RESULTS

Based on the ABC Analysis graphs for all manufacturers, here are the key findings:
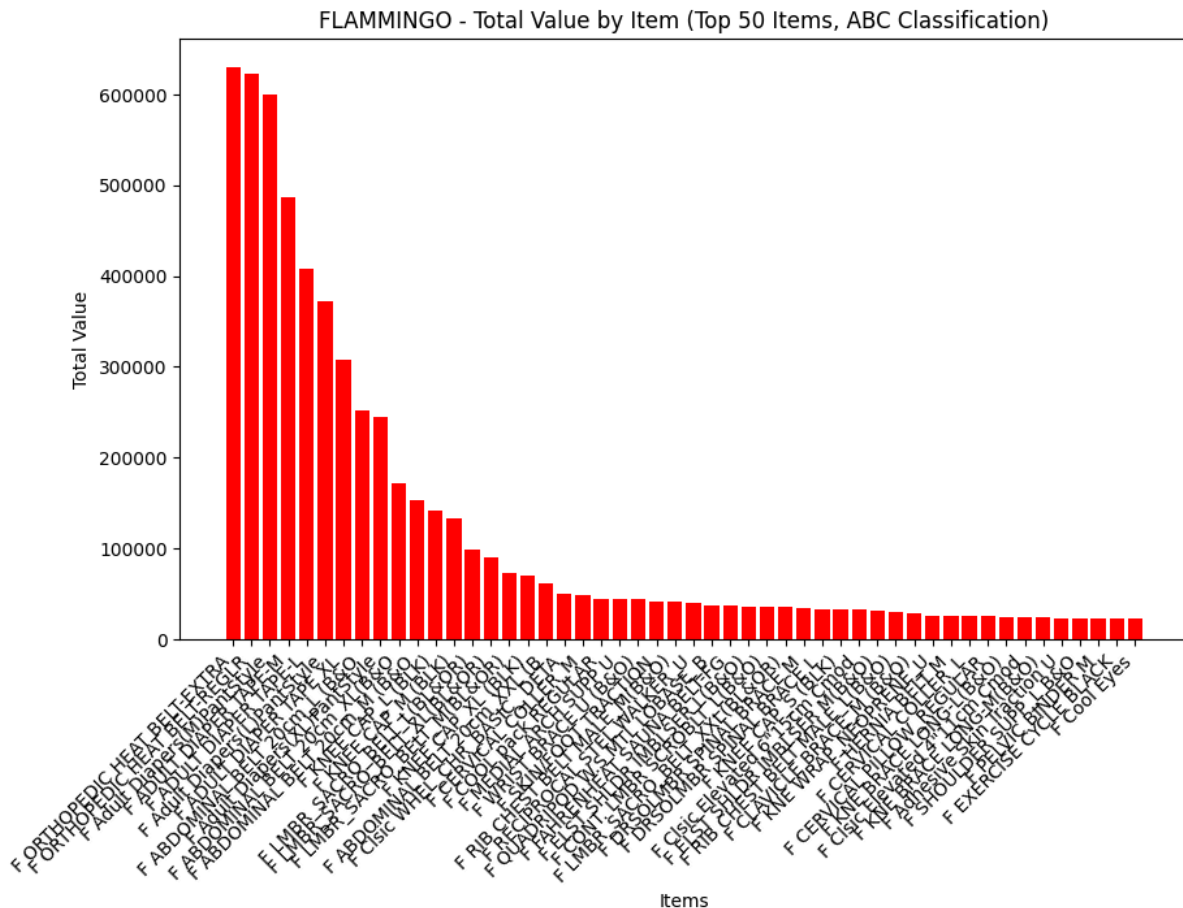
➔ FLAMMINGO:

IMAGE 3.6 : ABC Analysis - Flammingo

- The chart shows the total value by item for the top 50 items in the FLAMMINGO dataset, sorted in descending order.

- There is a steep decline in total value from the highest item to the lower-ranked items, indicating a large disparity in the sales or importance of the top products compared to the rest.

- The top few items have significantly higher total values, suggesting they are the most valuable or popular products in the FLAMMINGO lineup.

- The chart provides a clear visualization of the relative importance of the top 50 FLAMMINGO items, which could help inform business decisions and strategy.
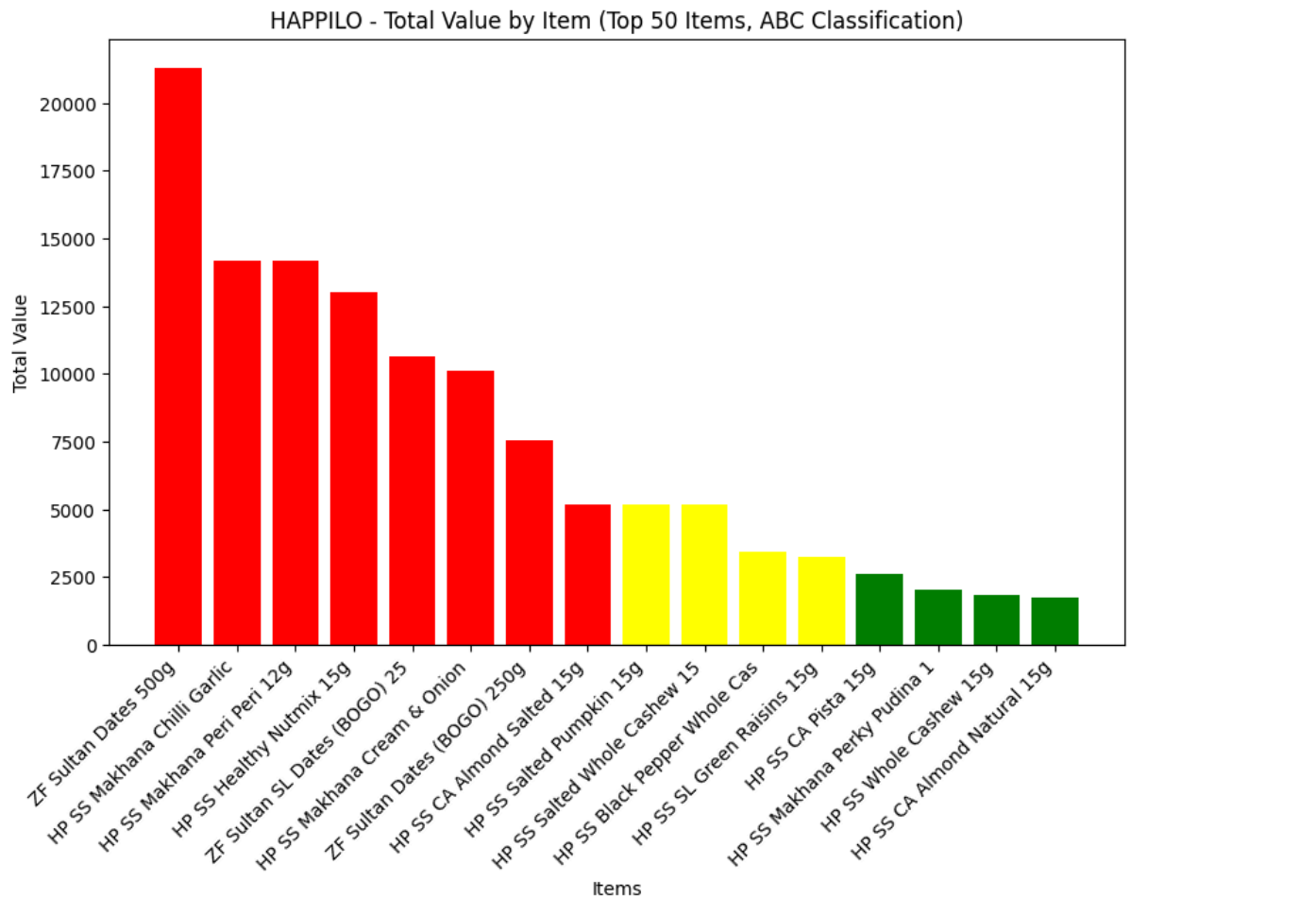

➔ HAPPILO:

IMAGE 3.7 : ABC Analysis -Happilo

- The HAPPILO chart shows a similar steep decline in total values from the top-ranked item to the lower-ranked items, suggesting a focus on a few high-value products.
- The top few items have significantly higher total values, indicating they are the key revenue drivers for the HAPPILO product line.
- The chart provides a clear visualization of the relative importance and sales performance of the top 50 HAPPILO items, which could inform business strategy and decision-making.
- The data could be used to identify opportunities for product diversification or the development of new high-value items to complement the existing top-selling products.
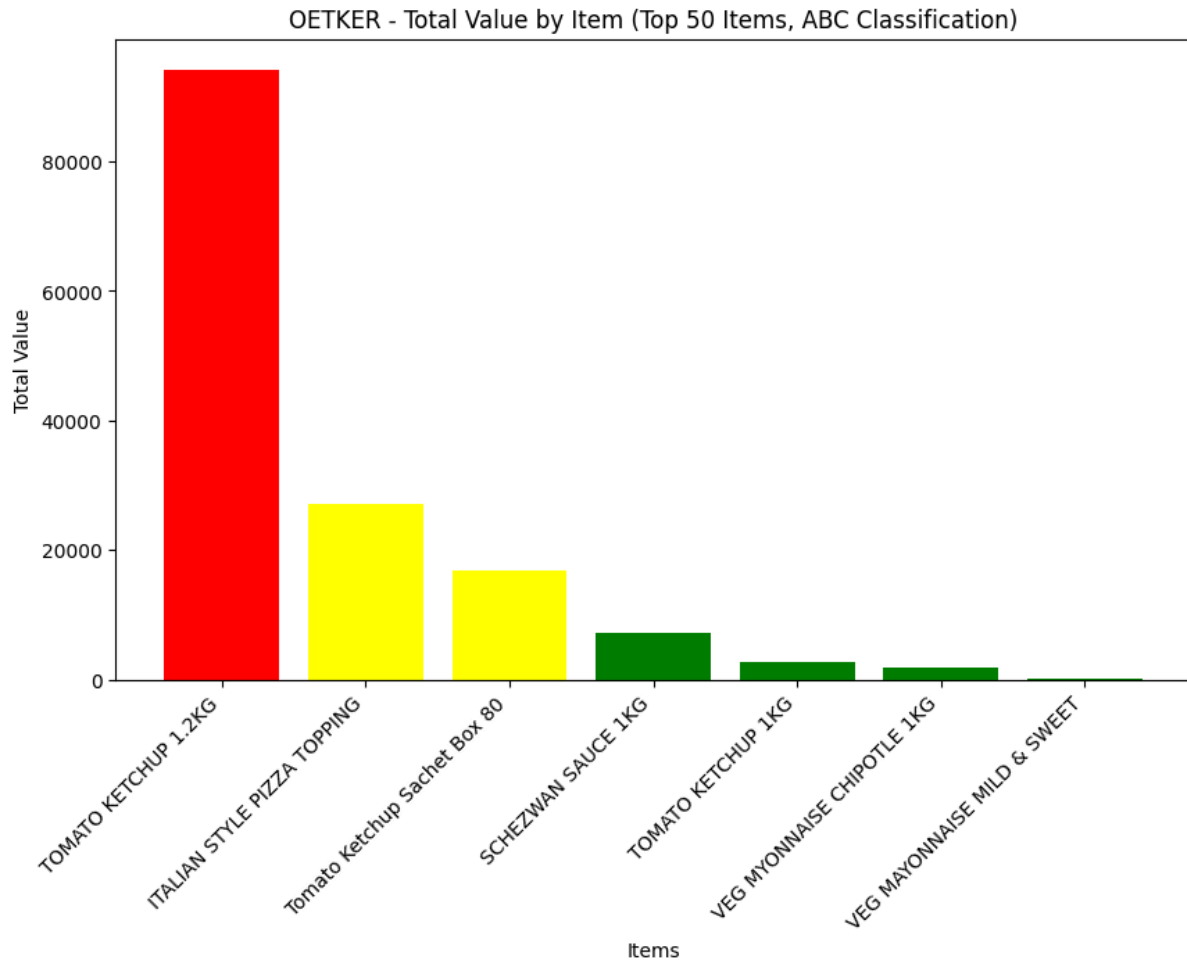
➔ <u>INSIGHT:</u>

IMAGE 3.8 : ABC Analysis - Insight

- The INSIGHT chart displays a similar steep decline in total values from the highest-ranked item to the lower-ranked items, mirroring the pattern observed in the FLAMMINGO data.

- The top few items have substantially higher total values compared to the rest, indicating a focus on a small number of high-value products.

- The chart provides a clear visual representation of the relative importance and sales performance of the top 50 INSIGHT items.

- The data could be used to inform strategic decisions around product mix, inventory management, and resource allocation for the INSIGHT product line.

➔ OETKER:

IMAGE 3.9 : ABC Analysis - Oetker

- This chart shows the total value by item for the top 50 items in the OETKER dataset, again sorted in descending order.

- The chart is dominated by a single item with an extremely high total value, significantly higher than the rest of the items.

- The remaining items have much lower total values, suggesting a highly skewed product distribution with one or a few top-selling products.

- The data could indicate that OETKER's business is heavily dependent on the success of its top-selling item(s), which may present both opportunities and risks in terms of product diversification and managing supply chain and inventory.
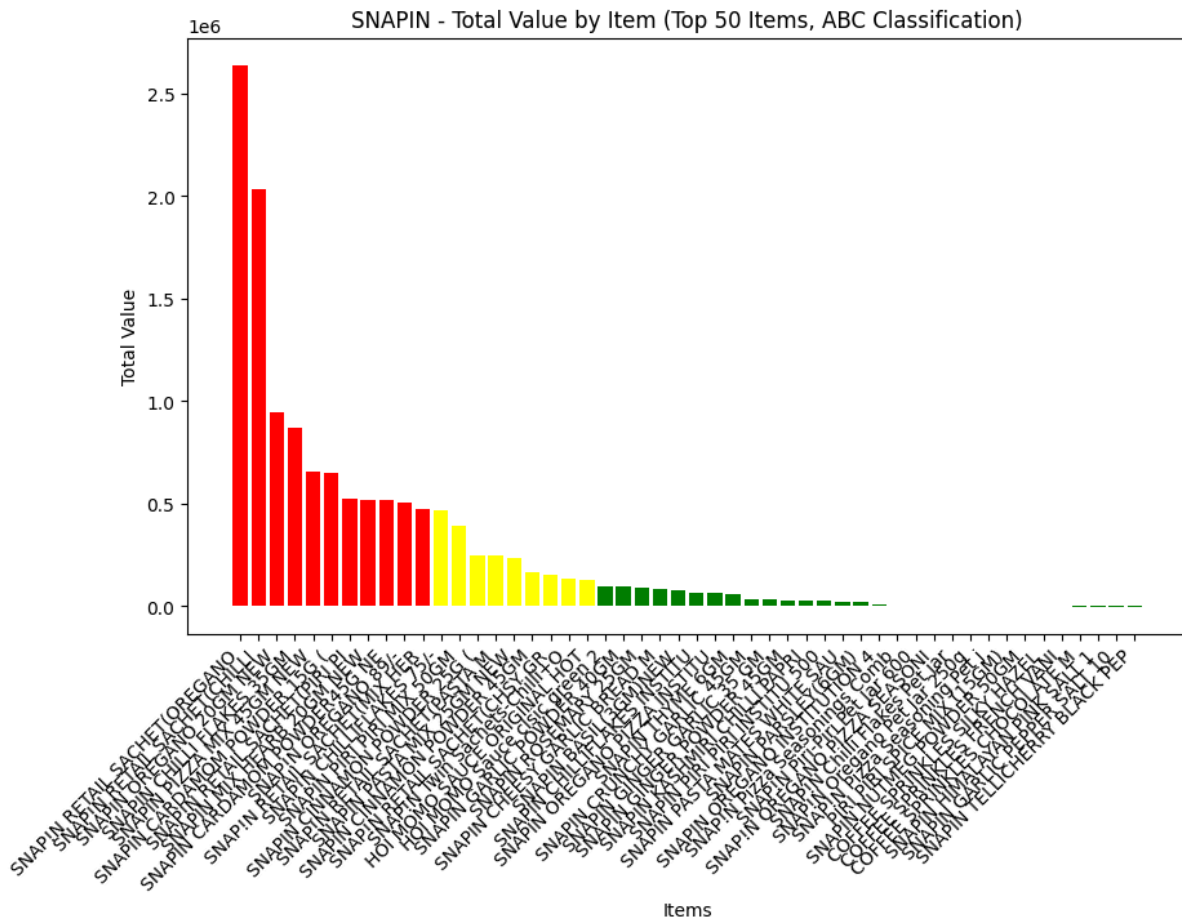
➔ SNAPIN:

IMAGE 3.10 : ABC Analysis - Snapin

- This chart also displays the total value by item for the top 50 items in the SNAPIN dataset, similarly sorted in descending order.

- The distribution of total values is more gradual, with a less steep decline compared to the FLAMMINGO data, suggesting a more even distribution of sales or importance across the top items.

- There is a clear separation between the top few high-value items and the rest of the items, indicating a potential focus on a few key products.

- The chart provides insights into the product mix and sales performance for the SNAPIN product line, which could inform inventory management, marketing, and other business decisions.
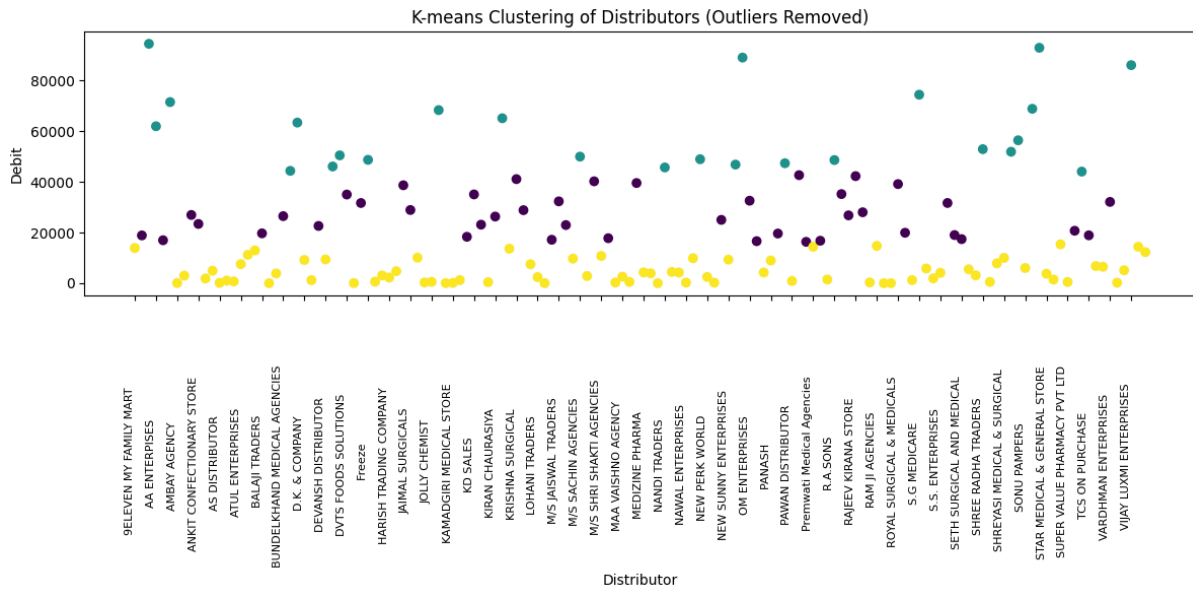
DISTRIBUTORS SEGMENTATION :

IMAGE 3.11 : K means clustering on Distributors

High-Value Distributors (Cluster 1):

These premium distributors represent our top-tier partners, with transaction volumes ranging from ₹44,061 to ₹94,500. Notable members include:

- A.C. with transactions of ₹94,500
- AKASH NUTRITION processing ₹71,498
- CHOODI SANSAAR handling ₹63,401

Medium-Value Distributors (Cluster 0):

This segment comprises our regular distributors with moderate transaction volumes between ₹16,331 and ₹42,648. Representative businesses include:

- A.S. ENTERPRISES (₹18,866)
- AMOHA ENTERPRISES (₹26,938)
- BALAJI TRADERS (₹19,679)

Low-Value Distributors (Cluster 2):

This segment includes smaller-scale operations with transactions ranging from ₹1 to ₹15,347. Examples include:

- AMBAY AGENCY (₹61)
- ANKIT STORE (₹1,868)
- ARUN TRADERS (₹4,920)

23

Notable Outliers:

In total 15 outliers were identified and were analyzed separately. Some of them:

- Major Banks: INDUSLAND BANK (₹8,310,041), Union Bank (₹11,190,130)
- Trading Corporations: LAKHAN & SONS SALES CORP (₹1,338,479)
- High-Value Individual Accounts: Dinesh Kumar (₹439,028)

4.   Interpretation of Results and Recommendation

Strategic Recommendations for R.L. Associates FMCG Distribution Operations

1. Advanced Inventory Management System

A) <u>Implementation of Predictive Analytics</u>

- Deploy SARIMA forecasting model for all five manufacturers (FLAMMINGO, SNAPIN, OETKER, HAPPILO, INSIGHT)
- Establish monthly forecasting reviews to adjust predictions based on actual performance
- Create automated alerts for significant forecast deviations
- Set up real-time inventory tracking system integrated with predictive analytics

B) <u>Enhanced ABC Analysis Implementation</u>

1. Product Classification Strategy:

- Class A (80% value): Implement daily monitoring and strict control measures
- Class B (15% value): Weekly monitoring with moderate control
- Class C (5% value): Monthly monitoring with basic controls

2. Manufacturer-Specific Approaches:

- FLAMMINGO: Focus on top-tier products due to sharp value drop
- SNAPIN: Maintain balanced inventory across product range
- HAPPILO: Implement aggressive stock management for new products
- OETKER: Diversify product portfolio to reduce single-product dependency
- INSIGHT: Rationalize 800-item portfolio to focus on high-performing products

C) <u>Early Warning System Enhancement</u>

1. Risk Classification System:

- Critical Risk: Products with zero sales in last 3 months
- High Risk: Products with declining sales trends
- Low Risk: Products with stable sales patterns

2. Used risk levels to prioritize interventions for at-risk products. For example:

- **Critical Risk Products**: Implement immediate markdown strategies to clear inventory and avoid wastage. Evaluate whether these products should be phased out or promoted aggressively through discounts.
- **High Risk Products**: Launch targeted promotional campaigns, adjust pricing strategies, and monitor stock levels closely to improve sales performance.
- **Stable Products**: Maintain current inventory practices, while continuously tracking performance trends to ensure continued stability.

2. Distributor Relationship Management

<u>Segment-Specific Strategies</u>

1. High-Value Segment (₹44,061–₹94,500):

- Implement premium partner program
- Offer priority access to new products
- Provide dedicated account management
- Develop customized credit terms
- Share market intelligence and analytics insights

2. Medium-Value Segment (₹16,331–₹42,648):

- Create growth incentive programs

- Offer volume-based discounts
- Provide regular business review meetings
- Implement performance improvement plans
- Offer training and development support

3. Low-Value Segment (₹1–₹15,347):

- Develop mentorship programs
- Provide basic business development support
- Implement minimum order value requirements
- Offer standardized credit terms
- Regular performance monitoring

3. Operational Excellence Initiatives

<u>Process Optimization</u>

Warehouse Management:

- Optimize storage layout
- Implement FIFO/FEFO systems
- Develop inventory tracking system
- Create efficient picking routes
- Enable automated stock counting