BUSINESS DATA MANAGEMENT CAPSTONE PROJECT PRESENTATION

Optimization of Sales Strategy and Order Forecasting in a Dairy Business

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Organisation Background :

About the Organization:

- “Naadul Milk is a dairy enterprise serving both B2B (cafes, shops, institutions) and B2C (household consumers).
- Offers milk, paneer, dahi, and ghee with focus on quality and affordability.

Nature of Business:

- B2B: Bulk supply to shops, cafes & businesses.
- B2C: Retail sales to households.
- Product Mix: Essentials (milk) + Value-added (paneer, ghee, dahi).

Problems Addressed:

1.Unpredictable Bulk Order Demand

- Demand fluctuations → risk of over/under stocking

2.Inefficient Product Mix & Profitability

- Lack of optimization → lower margins

3.Rising Raw Material Costs & Margin Pressure

- Increasing input costs → profitability squeeze

Project Summary:

Key Objective:

Optimization of Sales Strategy and Order Forecasting in a Dairy Business

Problems Statements:

1. B2B Order Pattern Forecasting:

Orders from bulk buyers fluctuate, leading to stockouts or overproduction. This affects daily operations, delivery schedules, and customer satisfaction.

2. Product Mix Optimization and Profit Maximization:

Naadul lacks a structured approach to analyze which products yield the highest margins in B2B vs. B2C markets. Without clear insights, the company may over-focus on low-margin products, impacting overall profitability.

Data Collection and Methodology:

Data Sources:

1. Sales and Order Records
2. Inventory Data
3. Cost and Pricing Data

Data Cleaning:

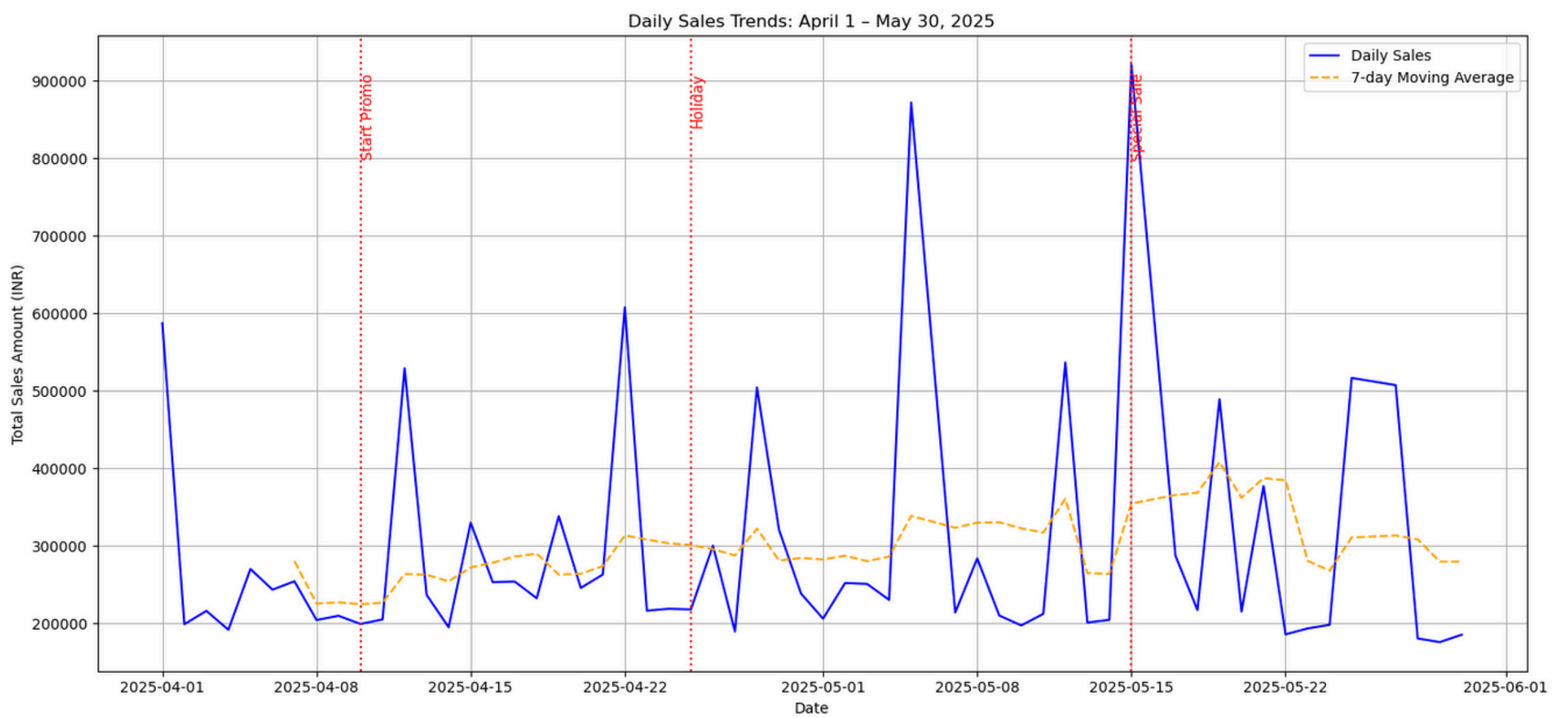
Missing values were handled, duplicates removed, and date formats standardized.

Methods Used for Analysis:

1. Moving Averages and Trend Analysis
2. ABC Analysis for Product Profitability
3. Profit Margin and Pricing Analysis
4. Sales Prediction Using Machine Learning (ML)
5. Product Mix Optimization

Result and Findings:

1.Moving Averages and Trend Analysis



• The moving average highlighted inconsistent sales phases with sudden spikes and dips, making it difficult to forecast bulk orders accurately.

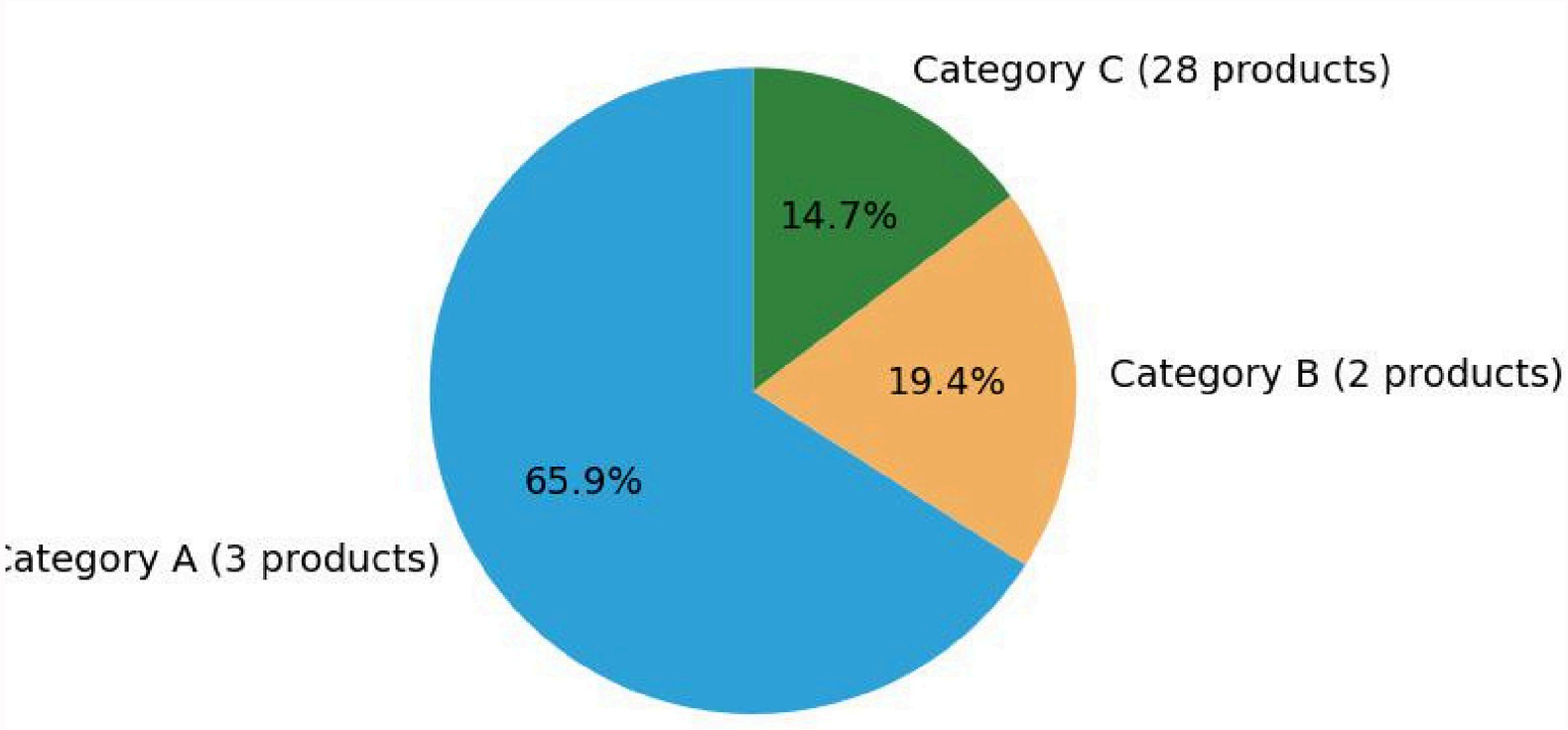
•Gradual increase in sales towards the end of May and variations across weekday/ weekends point to potential seasonal demand and weekly buying behavior

•Sharp deviations in sales were linked to external factors like festivals or market disruptions, impacting short-term profitability.

•Fluctuating sales patterns and external influences create unstable demand, which not only drives unpredictable bulk orders but also pressures margins amid rising raw material costs.
At the same time, emerging seasonal and weekly shifts reinforce the need for product mix optimization to better align supply with evolving customer preferences.

Result and Findings:

2. ABC Analysis for Product Profitability



• Just 3 products contribute ~66% of revenue, making them the core profit drivers.

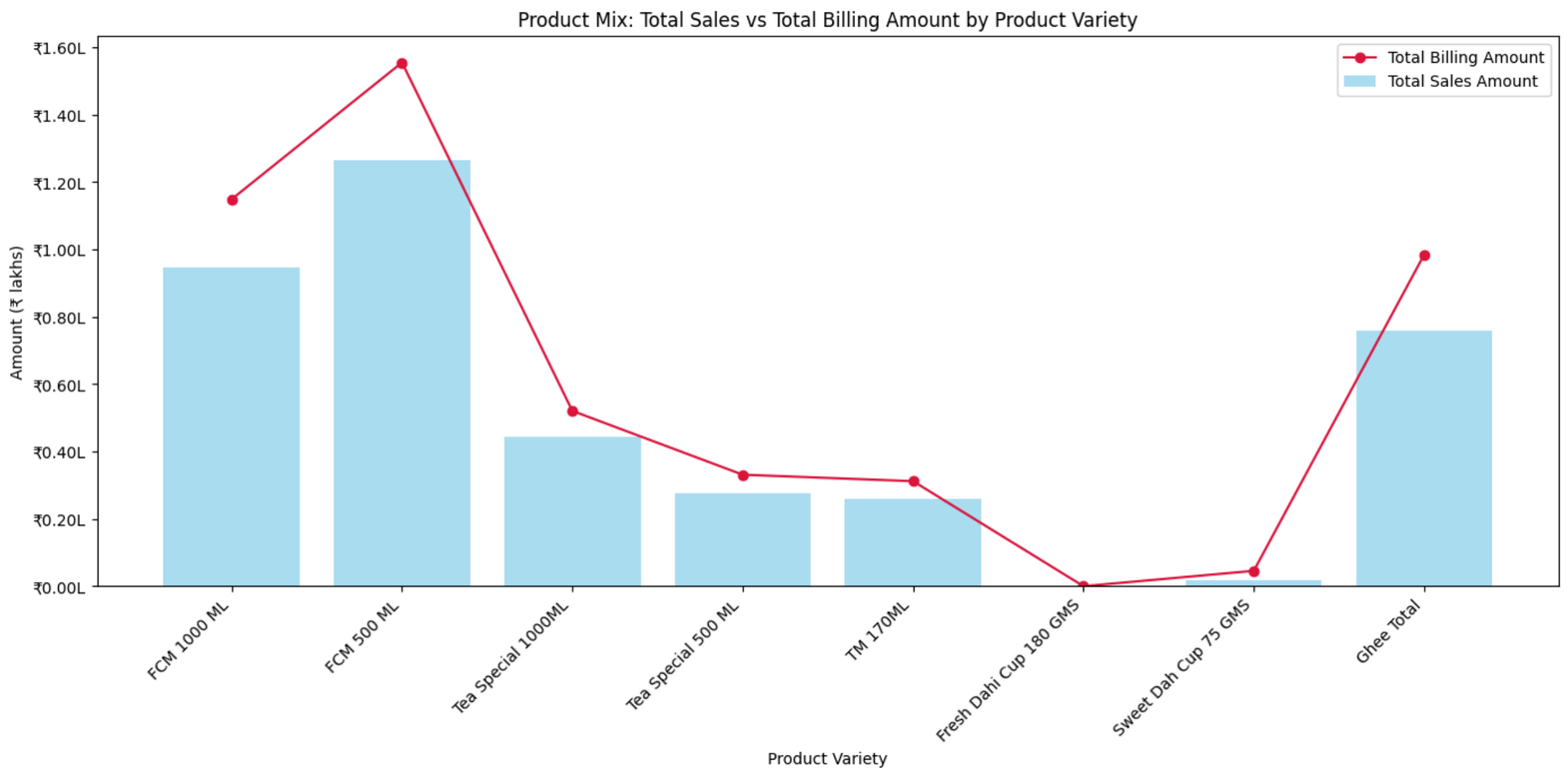
•28 products (Category C) account for only ~15% of revenue, yet consume significant shelf and inventory space.

•Over-dependence on high-value items (Category A) and underperformance of low-value items (Category C) increase vulnerability to rising raw material costs and margin pressure, highlighting the importance of better resource allocation

•Any fluctuation in demand or supply of key revenue drivers directly impacts bulk orders, while the imbalance across categories reinforces the need for product mix optimization to improve profitability and reduce inefficiencies

Result and Findings:

3. Product Mix Optimization.



• The high revenue and strong margins of Ghee, Full Cream Milk, and Paneer mean that fluctuations in their demand directly affect B2B order predictability, highlighting the need for accurate forecasting.

•Low-margin items like Sweet Dahi and Toned Milk tie up resources without significantly contributing to revenue, reinforcing the need for product mix optimization to maximize profitability.

•Using billing vs. sales insights to guide procurement, marketing, and distribution helps stabilize bulk orders and reduce margin pressure, addressing both unpredictable demand and inefficient product mix.

Interpretation and Recommendations:

Interpretation of Findings.

1. Stronger Control over B2B Demand Variability

- The combined insights from trend analysis and ML forecasts show that demand can be made more predictable.
- **Implication:** Naadul can move from a reactive approach (responding to sudden orders) to a proactive
- model of planned supply and logistics.

2. Revenue Concentration Highlights Strategic Priorities:

- ABC analysis proves that a few high-value products drive the majority of revenue.
- **Implication:** Strategic focus on Category A ensures business stability, while trimming or repositioning Category C improves cost-efficiency.

3. Integrated Data-Driven Decision Making

- The findings collectively demonstrate the need to embed analytics into daily operations—from forecasting demand to optimizing product portfolios.
- **Implication:** Data-driven systems can improve profitability, reduce wastage, and build resilience against raw material price fluctuations.

Interpretation and Recommendations:

Recommendations

1. Adopt Proactive Demand Management:
- Shift from reactive to forecast-driven supply planning using short-term ML predictions and moving averages.
- Business Value: Reduces uncertainty in bulk orders, ensuring better service to B2B clients while minimizing wastage.

2. Prioritize High-Value SKUs for Growth
- Concentrate marketing, inventory, and distribution efforts on Category A products that drive ~66% of revenue.
- Business Value: Strengthens the company's core revenue stream and ensures consistent profitability.

3. Rationalize Product Portfolio
- Reassess Category C SKUs with low sales and margins; phase out or bundle selectively.
- Business Value: Cuts unnecessary costs, frees up working capital, and simplifies operations.

4.Institutionalize Data-Driven Practices
- Build a performance dashboard for real-time visibility of orders, margins, and product mix.
- Business Value: Empowers management with actionable insights, aligning decisions with long-term profitability goals.

Conclusion:

- The project provided actionable insights into Naadul Milk's sales dynamics, highlighting demand variability, product mix inefficiencies, and margin pressures.
- By applying trend analysis, ABC classification, etc , the business can move towards data-driven decision making.
- The findings directly support improved B2B demand forecasting and optimized product mix management, enabling higher profitability and operational efficiency.

THANK YOU !

Project By -

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