Optimization of Sales Strategy and Order Forecasting in a Dairy Business

A Proposal report for the BDM capstone Project

Submitted by :

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Declaration Statement

I am working on a Project titled Optimization of Sales Strategy and Order Forecasting in a Dairy Business for NAADUL MILK. I extend my appreciation to Mr. Rajesh Kumar Singh (Managing Director-NAADUL MILK), for providing the necessary resources that enabled me to conduct my project.

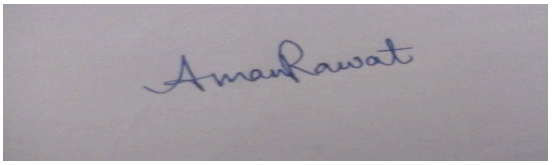
I hereby assert that the data presented and assessed in this project report is genuine and precise to the utmost extent of my knowledge and capabilities. The data has been gathered from primary sources and carefully analyzed to assure its reliability.

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 agree that all the recommendations are business-specific and limited to this project exclusively, and cannot be utilized for any other purpose with an IIT Madras tag. I understand that IIT Madras does not endorse this.



Signature of Candidate : (Digital Signature)

Name: Aman Kumar Rawat
Date: 11th June, 2025

1. Executive Summary and Title :

Naadul Milk is a regional dairy enterprise located at Beniram Katra Chauraha , Basuhar, Kaushambi, Uttar Pradesh 2112216. It deals in both B2B and B2C segments. The company offers a variety of dairy products including milk, paneer, ghee, dahi etc.

During interactions with the management, two key challenges were identified. First, the lack of accurate forecasting for B2B bulk orders has led to overproduction or stockouts, impacting both sales and logistics efficiency. Second, there is no data-driven strategy in place to determine the most profitable product mix for each segment. This has limited the company's ability to optimize margins and efficiently allocate resources across its product portfolio.

To address these issues, this project proposes a two-pronged approach. The first involves analyzing historical B2B order data to develop a predictive model for bulk demand forecasting. The second focuses on profitability analysis of products across B2B and B2C segments to recommend an optimized product mix strategy. Together, these solutions aim to support data-informed decision-making at Naadul Milk, improve inventory planning, and enhance overall profitability without compromising customer satisfaction.

2. Organization Background :

Naadul Milk is a privately held dairy company founded in 2019 by a group of local entrepreneurs. Headquartered in Kaushambi, Uttar Pradesh 2112216 a semi-urban district in North India.With approximately 40-50 employees across sourcing, production, sales, and logistics.

The company offers a focused range of dairy products including packaged milk, paneer, ghee,dahi etc . It serves both B2B clients and B2C households through doorstep delivery and local retailers. Naadul's mission is to provide high-quality, fresh dairy products at fair prices while supporting local farmers through ethical sourcing.

Decision-making is still largely intuitive rather than data-driven. As a result, mismatches in supply-demand planning and inconsistent profit margins have impacted operational efficiency. This project aligns with that vision by applying analytics to improve B2B demand forecasting and optimize product-level profitability.

The Naadul Milk has their online presence through their website: (https://naadulmilk.com/), enabling customers to access relevant information easily

Location: (https://maps.app.goo.gl/Cmu2WnX4aPqBfwAZ7)

3. Problem Statement :

The managing director of Naadul Milk shared that the business has been growing steadily due to strong demand from both household customers and bulk buyers.. However, the highlighted two major challenges that are affecting operations and profitability: unpredictability in B2B orders and lack of a data-informed strategy to manage product profitability. These issues have led to mismatches in supply and demand, underutilization of resources, and inconsistent profit margins across product categories.

Below is the list of identified problems:

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.

4. Background of the Problem :

1. **Unpredictable Bulk Order Demand:**
   Bulk buyers such as tea stalls, hotels, and local retailers place orders that fluctuate significantly due to seasonality, local events, and varying consumer demand. This unpredictability makes it difficult for Naadul Milk to plan production and inventory effectively, leading to either excess stock or stock shortages.

2. **Inefficient Product Mix and Profitability Management**
   Currently, Naadul lacks a structured approach to analyze product-wise profitability across B2B and B2C segments. Without clear data on which products generate higher margins, the company risks focusing resources on less profitable items, impacting overall business performance.

3. **Rising Raw Material Costs and Margin Pressure**
   The increasing price of raw milk and other inputs affects profit margins. Without optimized pricing and product prioritization, Naadul struggles to maintain sustainable profits while keeping prices competitive for its customers

5. Problem Solving Approach :

To address the challenges faced by Naadul Milk in B2B Order Pattern Forecasting and Product Mix Optimization, a structured, data-driven approach is adopted. This includes the use of appropriate analytical methods, targeted data collection, and relevant tools to generate actionable insights.

5.1 Methods Used with Justification

1. **Moving Averages and Trend Analysis**
   Historical sales and order data will be analyzed using moving averages and trend lines to identify demand patterns across customer types and time periods.
   Justification: These methods reveal consistent patterns and seasonality, supporting better production and planning.

2. **ABC Analysis for Product Profitability**
   Products will be classified into A, B, and C categories based on their contribution to revenue and profit.
   Justification: Helps prioritize high-value products, enabling better resource allocation and optimized product mix.

3. **Profit Margin and Pricing Analysis**
   Profit margins will be calculated using cost and price data, along with scenario-based pricing analysis.
   Justification: Assists in identifying profitable products and testing pricing strategies to enhance margins.

5.2 Data Collection with Justification

1. **Sales and Order Records**
   Monthly sales and order volumes per product, categorized by B2B and B2C.
   Justification: Key to understanding demand trends and forming the basis of forecasting.

2. **Inventory Data**
   Stock levels, purchase quantities, and unit costs.
   Justification: Useful for analyzing stock turnover and supporting demand-supply analysis.

3. **Cost and Pricing Data**
   Raw material costs, processing costs, and selling prices.
   Justification: Essential for margin calculation and pricing decisions.

4. **External Factors**
   Local events, seasonality, or institutional calendars that influence bulk demand.
   Justification: Improves accuracy of demand forecasts by accounting for external demand. drivers.

5.3 Analysis Tools with Justification

Excel
Used for data organization, ABC analysis, and initial visualizations.
Justification: Suitable for structured data processing and summary reporting.

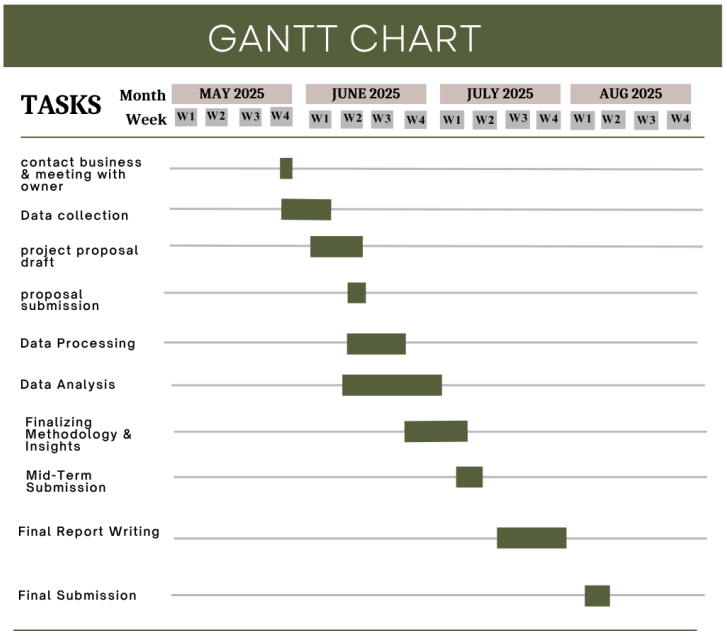
Python (Pandas, Matplotlib)
For data cleaning, trend analysis, and custom visualizations.
Justification: Enables efficient manipulation and visualization of large datasets.

Power BI
To create interactive dashboards for visual reporting.
Justification: Supports real-time monitoring of performance metrics and decision-making.

6. Expected Timeline:

6.1 Flow Chart:

6.2 Gantt Chart



7. Expected Outcomes :

Outcome:

The project will deliver actionable, data-driven outputs to support strategic decisions at Naadul Milk. Key deliverables include:

- A product classification (A/B/C) based on revenue and profitability using ABC analysis.
- A demand forecasting framework using moving averages and trend analysis.
- Profit margin analysis through cost-price comparisons and scenario evaluations.
- Power BI dashboards for real-time visibility into sales performance and product profitability.

Impact:

These outcomes will empower Naadul Milk to:

- Accurately predict demand patterns in both B2B and B2C segments, enabling better production and inventory planning.
- Identify high-profit products and allocate resources more effectively.
- Make informed pricing decisions that improve profitability without compromising competitiveness.
- Replace intuition-based decisions with reliable insights supported by data analysis using Excel, Python, and Power BI.

By leveraging historical sales, inventory, and pricing data, the project ensures that recommendations are grounded in actual performance metrics. This data-centric approach enhances operational efficiency and supports sustainable business growth.