

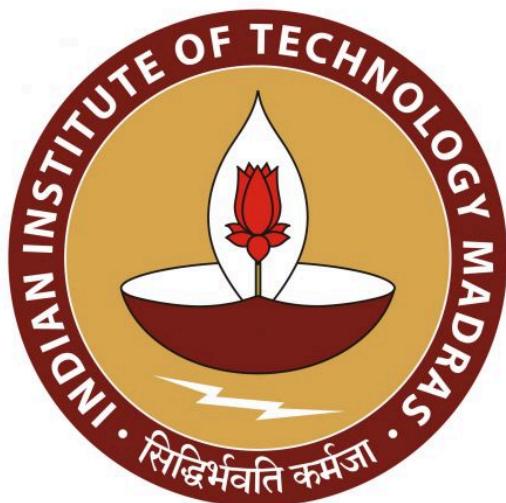
Case Study of Satyanarayan Grocery Store

A Proposal report for the BDM capstone project

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DECLARATION STATEMENT

I am working on a project titled “ case study of Satyanarayan Grocery Store” . I extend my appreciation to Mr.Satyanarayan for providing the necessary resources that enabled me to conduct my project . I hereby assert that the data presented and assessed in this project is genuine and precise to the utmost extent of my knowledge and capabilities.The data has been gathered through 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 information of academic honesty and integrity, and I am receptive to any additional examination or validation of 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 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.

1.Executive Summary:

Satyanarayan Grocery Store, owned and managed by Mr. Satyanarayan is a neighborhood grocery shop located near Bahanaga Railway Station in Bahanaga, Baleswar, Odisha (756042). Serving the everyday needs of the local community, the store offers a wide range of household essentials and grocery items, operating as a traditional B2C retail outlet in a semi-urban setting.

Despite its established presence and loyal customer base, Satyanarayan Grocery Store is currently facing significant challenges common to many traditional retailers. These include shrinking profit margins due to rising operational costs, inefficient inventory management resulting in overstocking and wastage, and intensified competition from rapidly growing online grocery platforms. The store's ability to adapt to changing consumer preferences and digital trends is becoming increasingly crucial for its sustainability and growth.

This case study aims to analyze the core business issues affecting Satyanarayan Grocery Store through a data-driven approach. By examining sales trends, inventory practices, and market competition, the project will identify actionable strategies to optimize inventory, enhance profitability, and strengthen the store's competitive position. The ultimate goal is to provide practical recommendations that will help the store modernize its operations, improve financial performance, and continue serving its community effectively in a dynamic retail environment.

2.ORGANIZATION BACKGROUND:

Satyanarayan Grocery Store, a trusted B2C grocery retail establishment, is owned and operated by **Mr. Satyanarayan** near Bahanaga Railway Station, Bahanaga, Baleswar, Odisha (756042). The store has been a cornerstone of the local community for over a decade, catering to the daily household needs of residents, commuters, and nearby households. Specializing in essential goods such as staples (rice, wheat, pulses), spices, edible oils, dairy products, and packaged snacks, the store emphasizes affordability, accessibility, and personalized customer service.

Established to serve the bustling neighborhood around the railway station, the store thrives on its strategic location, which ensures steady foot traffic. However, in recent years, the business has faced mounting challenges due to rising operational costs, competition from online grocery platforms, and inefficiencies in inventory management. Despite these hurdles, the store maintains strong customer loyalty owing to its reputation for quality products and Mr. Satyanarayan's hands-on approach to community engagement.

3. Problem Statements:

3.1 Inefficient Inventory Management

Satyanarayan Grocery Store currently relies on manual inventory tracking, which is time-consuming and susceptible to errors. This often leads to overstocking of slow-moving items and stockouts of high-demand products, resulting in lost sales opportunities and increased wastage. The absence of a systematic approach to inventory control hampers the store's ability to respond effectively to customer needs.

3.2 Declining Profit Margins

The store has experienced a steady decrease in profit margins due to rising operational costs, including procurement, utilities, and labor. Ineffective inventory management further exacerbates this issue by tying up capital in unsold stock and increasing wastage, making it challenging for the business to maintain healthy financial performance in a competitive market.

3.3 Lack of Data-Driven Decision Making

Satyanarayan Grocery Store does not systematically collect or analyse sales and inventory data, limiting its ability to identify trends, forecast demand, or optimize product assortment. This lack of actionable insights hinders effective decision-making, making it difficult to implement targeted promotions or adjust to changing customer preferences.

4. Background of the Problem:

The challenges faced by Satyanarayan Grocery Store reflect systemic shifts in India's retail sector, where traditional kirana stores increasingly struggle to compete with modern retail models. Declining profit margins stem from rising operational costs—such as procurement, utilities, and labor—coupled with inefficient inventory practices that tie up capital in unsold stock. Manual inventory tracking exacerbates mismanagement, leading to overstocking of slow-moving items and frequent stockouts of high-demand products, directly impacting customer satisfaction and revenue.

The lack of data-driven decision-making further compounds these issues. Without systematic analysis of sales trends or demand forecasting, the store cannot optimize product assortment, plan promotions, or adjust pricing strategies effectively. This gap leaves the business vulnerable to shifting consumer preferences, particularly as younger generations prioritize convenience and variety.

Critically, the rise of online platforms and quick-commerce services like Blinkit and Zepto has intensified competitive pressures. These platforms leverage advanced logistics, real-time inventory systems, and hyperlocal delivery networks to offer wider product ranges and 10–15 minute delivery windows, eroding the store's customer base. While the problem statements focus on internal operational gaps, the external threat from digital-first competitors amplifies the urgency for modernization. Without adopting technology to streamline inventory, analyze data, or integrate with hybrid retail models, traditional stores risk further margin erosion and market irrelevance. Booming of online market is one of the root cause of declining profit margin.

The convergence of these factors—operational inefficiencies, technological gaps, and disruptive competition—creates a critical need for the store to adopt data-centric strategies and modernize its business model to remain viable.

5. Problem Solving Approach:

a) Details About the Methods Used with Justification

To solve the issues at Satyanarayan Kirana Store, I am planning to follow a data-driven approach using a combination of analytical methods. First, I will apply **time series analysis** to understand sales patterns over time and identify trends and seasonal demands. This will help in forecasting future demand and avoiding stock outs or overstocking.

Next, I will conduct an **ABC analysis** to classify inventory based on their value and contribution to revenue. This will allow me to focus more on high-priority items (A-category) and reduce overstocking of low-priority items (C-category). I also plan to use **ratio analysis** to compute metrics like gross profit margin, inventory turnover ratio, and return on capital employed. These will help me understand the financial health of the business and pinpoint where profits are declining.

I will also use **visualization techniques** such as pie charts, histograms, and scatter plots to get a clear picture of sales, purchases, and inventory behavior. By combining these methods, I hope to generate meaningful insights and actionable recommendations for improving inventory and profitability.

b) Details About the Intended Data Collection with Justification

For this project, I am planning to collect four main types of data: sales, purchase, inventory, and financial. I will begin by collecting **sales data** including product name, sale date, quantity sold, and selling price. This will help me analyze fast and slow-moving products and estimate demand patterns.

I will also collect **purchase data** such as item names, quantities purchased, cost prices, and purchase dates. This will be important for comparing procurement costs and managing supplier efficiency. Next, I will gather **inventory data**, which includes stock levels, storage duration, expiry status, and any damaged or outdated products. This will directly help in identifying causes of wastage and blocked capital.

Additionally, I will gather **financial data** like labor costs, electricity bills, rent, and taxes to understand the store's overall expenditure. This information is vital for analyzing profit margins and operational efficiency. The data will be collected manually from store records and bills over a period of 30 to 60 days.

c) Details About the Analysis Tools with Justification

I plan to use **Microsoft Excel** initially to organize and clean the data. Excel's Pivot Tables, formulas like **VLOOKUP**, and conditional formatting will help me filter key trends, group data, and generate useful charts quickly.

For more complex analysis, I will use **Python**, specifically libraries like Pandas for data manipulation and Matplotlib/Seaborn for advanced visualizations. This will allow me to process larger datasets and uncover deeper patterns, especially for forecasting and ratio analysis.

6.Expected Timeline:

6.1 WORK BREAKDOWN STRUCTURE :

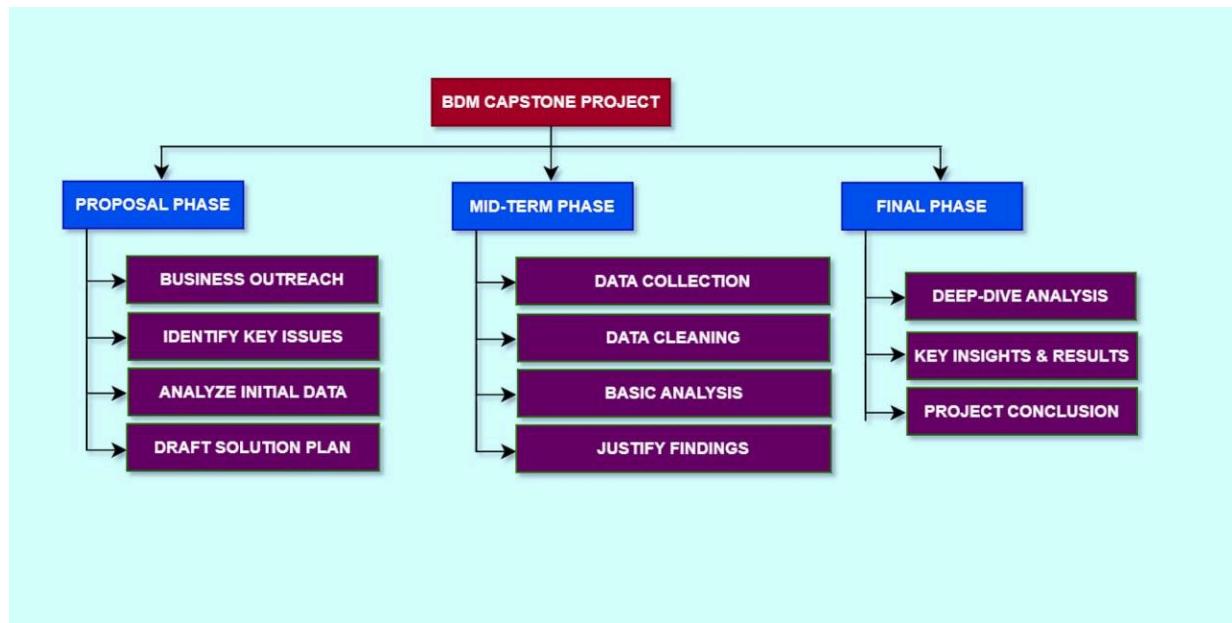


Figure 1 Work breakdown structure of this project

6.2 GANTT CHART:

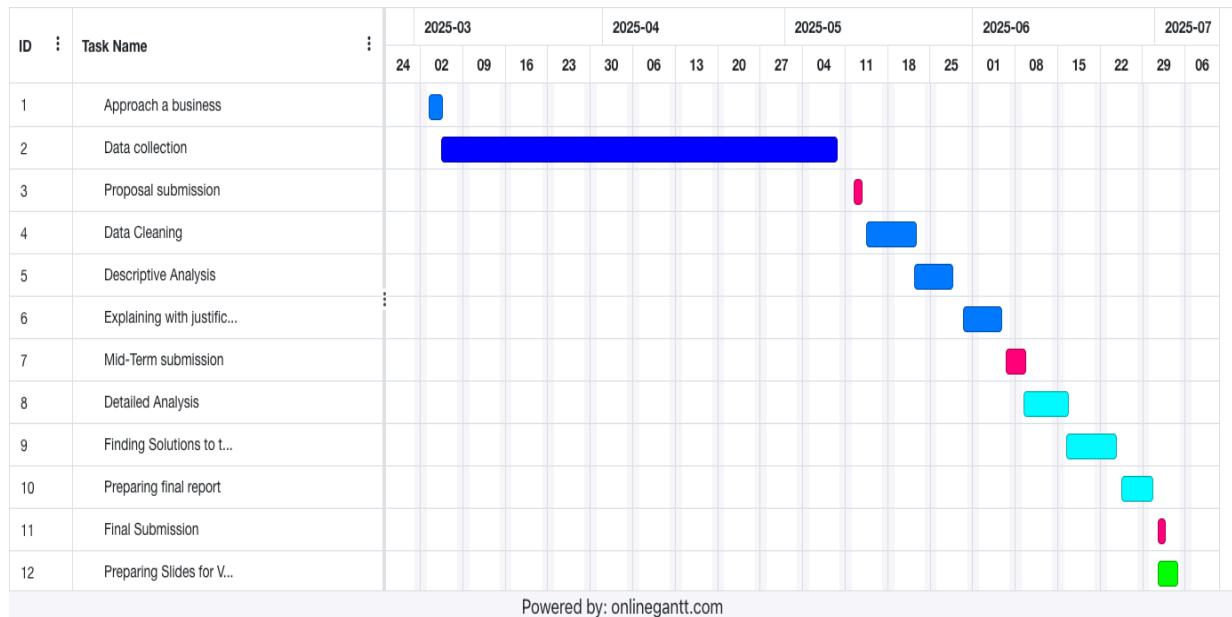


Figure 2 Expected Timeline for completion of project

7. Expected Outcome:

7.1 Improved Inventory Management

Through the analysis of sales, purchase, and inventory data, I expect to identify the causes of overstocking and stockouts. The insights gained will help the store owner maintain an optimal stock level by focusing on high-demand items and avoiding unnecessary purchases of slow-moving products. This will reduce wastage, free up storage space, and improve cash flow.

7.2 Increase in Profit Margins

By analyzing financial data alongside inventory turnover and purchase efficiency, I aim to highlight areas where costs can be minimized and profits can be maximized. This includes reducing unnecessary expenditure, improving purchase decisions, and avoiding capital blockage in unsold stock. The result should be a measurable improvement in net profit margin.

7.3 Data-Driven Decision Making

This project will encourage the store to shift from manual, intuition-based decisions to a more analytical approach. With tools like Excel dashboards and Python visualizations, the store owner will be equipped to forecast demand, plan procurement, and track financial performance. These data-backed strategies can lead to smarter decisions and long-term business growth.