

Strategic Solutions for Profit Growth and Waste Management in Fresh Produce Retail

A Proposal report for the BDM capstone Project

Submitted by

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Declaration Statement

I am working on a Project titled “Strategic Solutions for Profit Growth and Waste Management in Fresh Produce Retail”. I extend my appreciation to **Vishnu Kumar & Sons**, 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 analysed 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 fulfilment in the BS Degree Program offered by IIT Madras. The institution does not endorse any of the claims or comments.

Signature of Candidate:

A handwritten signature in black ink, appearing to read 'Raghav', with a stylized underline.

Name: Raghav Dixit

Date: November 1, 2024

1 Executive Summary

This project focuses on analysing and offering recommendations to address the challenges faced by *Vishnu Kumar and Sons*, a vegetable seller located at Jareeb Chowki, Kanpur. The business caters to both B2B and B2C segments, supplying vegetables to small retail vendors and serving individual consumers looking for fresh produce.

Vishnu Kumar and Sons faces significant challenges due to the lack of systematic tracking for each purchase and sales transaction. This absence of record-keeping leaves the owner uncertain about setting optimal profit margins between cost and selling prices, making it difficult to meet income targets consistently. Additionally, the business struggles with inventory management, resulting in inefficient stock handling and potential waste.

The issues will be tackled by employing various analytical methods to examine the data, enabling us to gain insights that will inform effective strategies. By leveraging data analysis, we aim to identify trends and patterns that will lead to actionable solutions, ultimately enhancing profitability and improving inventory management to minimize waste.

Firstly, I'll analyse past transaction data, including costs, sales prices, and profit margins, to identify patterns and understand the factors limiting profit growth. This approach will help in setting optimal pricing strategies and identifying opportunities to attract new customers. Secondly, I'll review historical inventory data and daily sales trends to identify common sources of waste and demand fluctuations. This analysis will guide in developing a more accurate inventory forecasting model, helping to reduce spoilage and maintain optimal stock levels aligned with actual demand.

2 Organisation Background

Business Name: Vishnu Kumar and Sons
Address: 170/A Jareeb Chowki , Anwarganj, Kanpur
Owner's Name: Mr. Vishnu Kumar

Vishnu Kumar and Sons is a family-owned vegetable shop that has been serving the community for three years, located in Jareeb Chowki, Kanpur. Founded by Vishnu Kumar, a polite and approachable individual, the shop was established with the vision of providing fresh, high-quality vegetables to local consumers and small retail vendors. Despite being new to the business, Vishnu has embraced the challenges of the vegetable trade with dedication and a commitment to customer satisfaction. He operates the shop alongside his son, who

brings a youthful perspective to the business. Together, they strive to create a welcoming atmosphere for customers, focusing on offering a diverse range of produce while building strong relationships within the community. As they navigate the complexities of the market, they are eager to learn and adapt, aiming to enhance their operations and grow their family business.

3 Problem Statement

- 3.1 The owner of a vegetable shop, faces challenges in accurately assessing the reasons behind stagnant monthly profits, which have remained largely unchanged despite a steady flow of customers and consistent foot traffic. Over the past six months, the shop's monthly profit has fluctuated within a narrow range, showing minimal growth. The owner is uncertain about the factors contributing to this stagnation, making it difficult to develop effective strategies for improvement.
- 3.2 The owner has been experiencing significant waste due to poor inventory management. Despite sourcing fresh vegetables daily, the vendor frequently ends up with unsold, spoiled produce by the end of each week. This waste is directly impacting the shop's profitability and limiting the vendor's ability to grow his business.

4 Background of the Problem

Vishnu Kumar and Sons faces significant challenges related to stagnant profits in their vegetable-selling business. The absence of a proper record-keeping system makes it difficult to track monthly income and determine the necessary daily turnover to meet financial goals. There is uncertainty about the appropriate margin to apply to selling prices in order to achieve the desired monthly income.

Vishnu Kumar and Sons also struggles with improper inventory management, which results in significant spoilage of vegetables. Due to improper management of the stock, there is excess inventory that goes unsold and spoils before it can be sold. Consequently, the business faces financial losses and diminished customer satisfaction, as the freshness and quality of the vegetables cannot be consistently maintained.

In summary, the lack of proper record-keeping at *Vishnu Kumar and Sons* hampers financial clarity, leading to challenges in tracking income and expenses, ultimately affecting overall business performance and profitability.

5 Problem Solving Approach

5a. Details about the methods used with Explanation:

For addressing the issues faced by "Vishnu Kumar and Sons," a comprehensive strategy incorporating both quantitative and qualitative methods is essential.

Quantitative Approaches:

- **Time-Series Analysis:** Analysing financial data over time will reveal trends, recurring patterns, and fluctuations in key financial metrics, providing insights for informed decision-making.
- **Statistical Analysis:** I will apply diverse statistical techniques to gain valuable insights from financial data, going beyond specific methodologies like the Pareto Principle.

Qualitative Approaches:

- **Interviews:** Engaging with Mr. Vishnu Kumar will offer firsthand insights into his views on inventory management, challenges encountered and preferences on profit margins.
- **Market Benchmarking:** By comparing "Raj Kishore Gupta and Sons" with similar enterprises, I aim to identify market best practices regarding profit margins and inventory management.

5b. Details about the intended data collection with Explanation:

Vegetable Transaction Data: Gather comprehensive records of past transactions, detailing cost prices, selling prices, quantities bought, and quantities sold. This data forms the basis for financial analysis and helps in setting pricing strategies to achieve desired profit margins.

Inventory Management: Collect and analyse data on inventory turnover rates, stock levels, and reorder points for major vegetables. This information aids in optimizing inventory management by identifying demand patterns and ensuring efficient stock levels to minimize both shortages and overstock.

Explanation: Focusing on key vegetable products simplifies the data collection process, making it manageable while providing a representative sample for detailed analysis. Variables such as cost price, selling price, quantity sold, and quantity bought are essential for calculating financial metrics and ratios, supporting a robust analysis. For inventory management, analysing stock turnover and demand patterns enables better planning and inventory optimization, improving stock availability and minimizing holding costs.

5c. Analysis Tools and Justification:

- **Google Sheets and Excel:** These tools will be utilized for initial data processing, cleaning, and analysis. They are effective for creating charts and performing various calculations to derive meaningful insights from the data.

- **Python with Pandas and Matplotlib/Seaborn Libraries:** In conjunction with Excel, Python will facilitate a deeper exploration of the data, allowing for advanced data manipulation and the creation of more sophisticated visualizations to uncover additional insights.

Justification:

- **Google Sheets and Excel:** These platforms are ideal for data processing and analysis due to their user-friendly interfaces, making it easy to perform basic calculations and generate charts.
- **Python:** This programming language allows for enhanced data manipulation and complex visualizations, which complement the capabilities of Excel, resulting in a more thorough understanding of the dataset.

6 Expected Timeline

6.1 Work Breakdown Structure:

- **Data Collection:** I collected data in the months of September and October, spanning a total of 45 days.
- **Data Cleaning and Processing:** I have successfully cleaned the data until the end of September.
- **Proposal Preparation:** I prepared my project proposal at the mid of October.
- **Data Analysis:** I started basic data analysis in the end of October.
- **The aim is to successfully analyse and provide conclusive recommendations by the starting of December.**

6.2

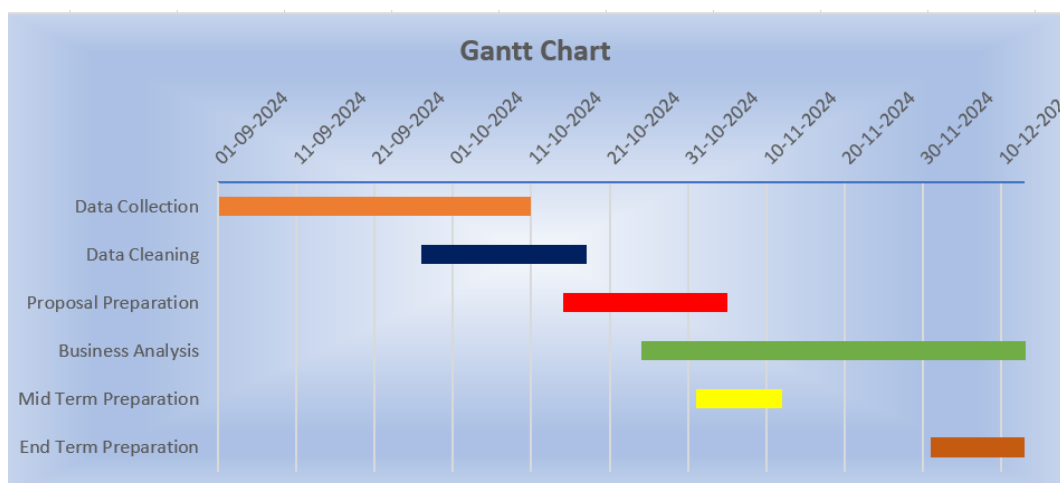


Figure 1 Expected timeline for completion of project.

7 Expected Outcome

- To establish a transparent pricing strategy that defines the margin between the cost and selling price of vegetables by analysing historical transaction data.
- Develop strategies to maintain an optimal and sustainable margin, enhancing the business's profitability and ensuring its financial stability.
- Deliver a detailed financial assessment of the business by utilizing data-driven analysis of various factors, such as costs, selling prices, and profits related to vegetable transactions.
- To support the business owner in improving inventory management practices by developing data-driven strategies and guidelines for effective inventory control.