

# **Optimizing Inventory Management for Efficient Operations and Profit Maximization in a Pharmacy**

**A Proposal report for the BDM capstone Project**

Submitted by

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## **Declaration Statement**

I am working on a Project titled **"Optimizing Inventory Management for Efficient Operations and Profit Maximization in a Pharmacy"**. I extend my appreciation to **Babbar Pharmacy**, 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:

A handwritten signature in blue ink, appearing to read 'Yatin', with a stylized flourish underneath.

Name: Yatin Thakral

Date: 03-10-2024

## **Executive Summary**

Babbar Pharmacy is a small retail pharmacy located in Delhi, India, operating as a B2C business which caters to the healthcare needs of local customers. The store specializes in the sale of prescription and over-the-counter medicines, serving both regular customers and new visitors from the neighborhood.

The major problems that the pharmacy is currently facing are inefficient inventory management and low profit margins. A large portion of its inventory is overstocked, which leads to excess holding costs, while popular medicines sometimes run out of stock. Additionally, there is lack of insight into which product lines generate higher profits, which causes the pharmacy to miss potential opportunities to optimize its profitability.

To address these problems, I plan to use a data-driven approach for more efficient inventory management. I will examine the sales data of medicines over a period of time to analyze trends in costs, selling prices, and profit margins. This analysis will help me develop a systematic approach to managing inventory. Understanding which medicines are sold most frequently to regular customers will also help improve profit margins and develop strategies to enhance customer retention.

## **Organization Background**

Business Name: Babbar Pharmacy

Owner: Mr. Babbar

Address: A-10, Block B-4, DDA Market, Lawrence Road, Delhi – 110035

Established in 2018, Babbar Pharmacy is a family-owned, for-profit retail pharmacy. The pharmacy operates primarily as a B2C business, which caters to the healthcare needs of local residents. The store offers a wide variety of products ranging from pharmaceutical products including prescription medications, over-the-counter drugs and healthcare supplies to personal care products.

With a staff of four employees, including two pharmacists, the pharmacy operates efficiently to cater to both long-time customers and new visitors. It also provides a free home delivery and offers discounts on medical supplies. In addition to medications, the store also stocks health supplements and personal care products. While the business has built a good reputation in the local community over the years, it faces challenges related to inventory management and profitability.



Picture of the Pharmacy

## **Problem Statement**

The main problems faced by Babbar Pharmacy are:

1. **Inefficient Inventory Management:**

Babbar Pharmacy struggles with managing its inventory effectively, resulting in overstocked items that lead to increased excess holding costs and the risk of expiration. This inefficiency creates cash flow issues and hampers overall profitability.

2. **Low Profit Margins:**

The pharmacy faces challenges in optimizing profit margins due to a lack of insights into the performance of different product lines. This limited understanding leads to missed opportunities for increasing profitability and effective pricing strategies.

3. **Stock Availability Issues:**

Popular medicines frequently run out of stock, affecting customer satisfaction and loyalty. The pharmacy needs to analyze sales data to ensure the right balance of stock levels, preventing stockouts while minimizing excess inventory.

## **Background of the Problem**

Babbar Pharmacy is experiencing significant challenges in its inventory management and profit optimization due to several interconnected factors. First, the absence of a systematic inventory tracking system has made it difficult to monitor stock levels effectively. This lack of organization leads to overstocking of less popular medicines, resulting in unnecessary holding costs, while frequently demanded medicines often run out of stock, causing missed sales opportunities and customer dissatisfaction.

Secondly, there is confusion surrounding pricing strategies, as the pharmacy lacks insight into which product lines yield higher profit margins. This deficiency hampers the ability to make informed decisions on pricing, leading to nominal profits despite a high volume of sales. Without a clear understanding of the costs associated with each medicine, the pharmacy cannot set competitive yet profitable prices.

Additionally, external factors such as local competition and fluctuating supplier prices contribute to the challenges faced by Babbar Pharmacy. With numerous competitors in the area, maintaining profitability while offering competitive prices becomes increasingly difficult.

In summary, the problems stem from inadequate inventory management practices and a lack of data-driven insights into sales performance and profitability. Addressing these issues is vital for enhancing the operational efficiency and financial health of Babbar Pharmacy.

## **Problem Solving Approach**

The first step will involve collecting and organizing sales data from the past 15-30 days. This data will include details on daily sold medicines, selling prices, quantities, and profit margins.

The key variables collected for each medicine will include:

- Cost Price: To determine the expenses involved in purchasing inventory.
- Selling Price: To evaluate revenue generation and profit margins.
- Quantity Sold: To assess demand and turnover rates.
- Category: To analyze which category of medicines leads to the most profit.

By analyzing this data, trends can be identified regarding which products are selling well, seasonal variations in sales, and patterns in customer purchasing behavior. The data collected will be time-series data on medicine sales, providing an excellent opportunity for analyzing trends over time. By plotting various trends, I will gain insights into customer purchasing behavior and seasonal demand fluctuations. Additionally, with the help of various features in Excel, such as Pivot Tables, we can create visual representations, including pie charts and

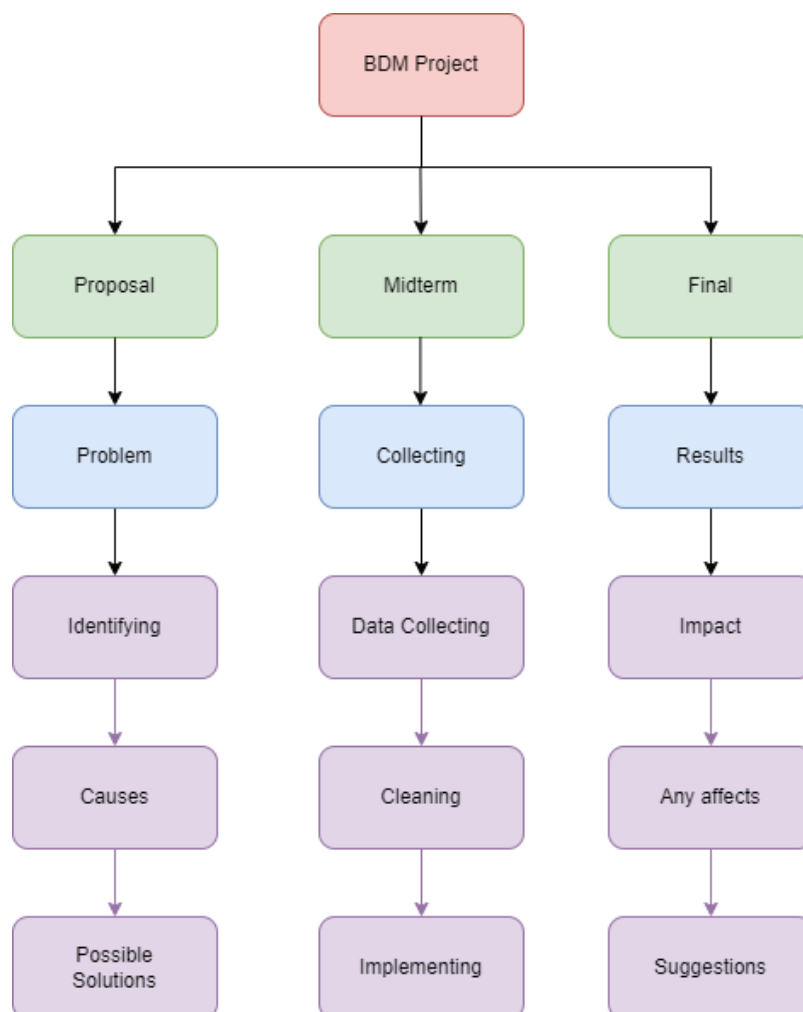
histograms. These visual tools will help uncover insights regarding inventory levels and sales performance.

Utilizing these variables, I will compute Revenue, Gross Profit, Net Profit, Profit Margin, and Gross Profit Ratio. A comprehensive analysis of profit margins across different product categories will also be conducted, helping to identify high-margin products and those that may be underperforming. Understanding the contribution of each product line to overall profitability will allow the pharmacy to make informed pricing decisions, ensuring that profit margins are maintained or improved.

By using these approaches, Babbar Pharmacy will enhance operational efficiency, optimize inventory levels, and improve profit margins, ultimately leading to a more sustainable and profitable business model.

## Expected Timeline

### Work Breakdown Structure:



## Gantt Chart:



## Expected Outcome

The expected outcomes are:

- The project is expected to solve the problem of Inefficient Inventory Management which includes:
  - Overstocked items that lead to increased excess holding costs and the risk of expiration.
  - Out of stock items which affect customer satisfaction and loyalty.
- It is also expected to optimize profit margins by analyzing performance of different product lines.
- The expected outcome of this project is to increase overall revenue and customer retention of Babbar Pharmacy.

This project is a collaborative effort between the BDM Capstone Program and Babbar Pharmacy, aimed at contributing to the growth and sustainability of the company.