

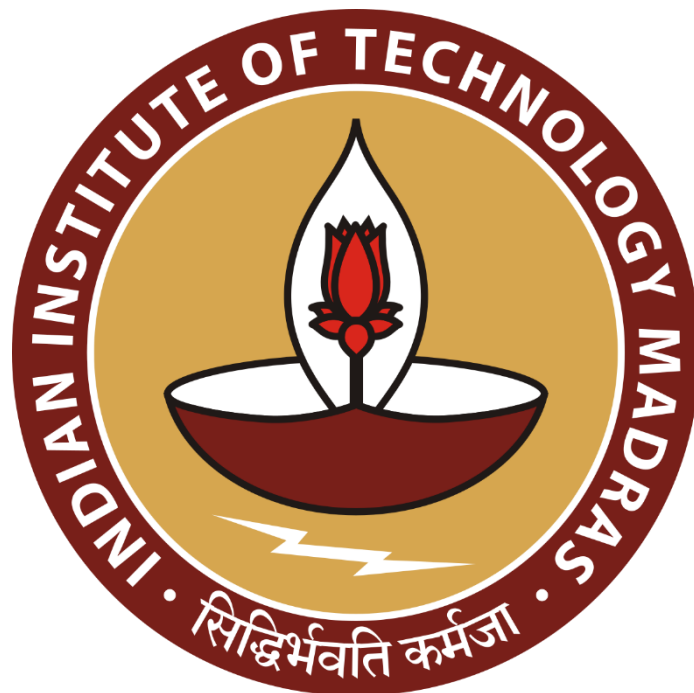
A Quantitative Analysis to Evaluate and Enhance Operational Efficiency and Profitability in a Pharmaceutical Retail Store

A Proposal Report for Business Data Management Capstone Project

Submitted by

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Declaration Statement

I am working on a Project titled “A Quantitative Analysis to Evaluate and Enhance Operational Efficiency and Profitability in a Pharmaceutical Retail Store”. I extend my appreciation to Singh Medico, 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 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

Name: Shreya Shambhavi

Date: 05th February, 2024

1. Executive Summary

In this project, the aim is to do a detailed analysis of Singh Medico's, a medical store, operational at Lalgutwa, Ranchi. Established in 2018, it belongs to the B2C domain.

Situated on the outskirts of Ranchi, Singh Medico serves a large area since the next medical shop is comparatively far. Consequently, the shop has to deal with a wide variety of demands and needs as the outskirts of Ranchi are witnessing many housing projects and the movement of people from the main city and faraway places to there. Hence, the shop is currently facing issues in terms of stock management which is consequently affecting the sales. It is very important for Singh Medico to tackle these issues to cater to the population of Lalgutwa.

In this project, we delve into a detailed analysis of Singh Medico's operational data to enhance efficiency, profitability, and strategic decision-making. Through a combination of quantitative analysis, we explore key aspects such as sales, purchase, inventory management, and customer behavior. The findings provide actionable insights that can guide the store towards improved performance and sustainable growth.

2. Organization Background

Established in 2018, Singh Medico is operational at Lalgutwa, Ranchi. It belongs to the B2C domain and is owned by Mr. Rajiv Ranjan Singh. Serving an area located 16 KM towards west from district headquarters Ranchi and 14 KM from state capital Ranchi, Singh Medico is a prime pharmaceutical retailer for the newly shifted people as well as old residents. Mr. Singh had two employees previously, but now operates the store with only one. Despite being the first choice of locals, Singh Medico is facing storage as well as profitability issues due to the lack of an efficient management structure.

3. Problem Statement

1. Singh Medico is challenged by the lack of an efficient and well-structured inventory management plan, leading to incomplete demand completion; negatively impacting the business's credentials in the market.

2. Coming from a close vicinity of the previous problem, the issue is the understanding of customer demand, and the understanding of which products are adding the most to the profit.

4. Background of the Problem

Operational since 2018, Singh Medico is a rather new shop in the market but is at the beneficial spot of Lalgutwa, Ranchi. Catering to a population which has Recently moved from the main city to the outskirts or has settled there from rural area. Also, another important factor is the fact that it is the point of many ongoing and upcoming housing and residential projects. Thus, Singh Medico, one of the only pharmaceutical retailers in a considerable amount of area is the prime server to this populace. Yet, it is facing problems in the form of:

1. Lack of managerial skills in terms of current stock inventory.
2. A gap in understanding customer demand.
3. Generation of bare minimum financial profits.
4. Difficulty in holding loyal customer base.

Thus, despite the potential of holding a strong position in the locality and generating better profitability, Singh Medico is failing to do so, hampering their business credentials. It is important to understand the demand and acknowledge the competitiveness of the market for better personal performance.

5. Problem Solving Approach

While approaching this project we Provide an overview of the dataset, including the attributes (Sales, Purchase, Current Stock) and the time span covered. Then, we Address any data cleaning or preprocessing steps undertaken to ensure data accuracy. We explore the descriptive statistics and evaluate the correlation between Sales and Purchase to identify potential relationships. In order to analyse trends and seasonality, we resort to time series analysis and forecasting models to predict future sales and aid in proactive planning. Implement linear and multiple regression analyses we can understand the impact of factors like Current Stock on Sales. The inventory situation can be taken care of by implementing inventory turnover, in

order to gauge efficiency as well as implementation of ABC analysis to prioritise items. Market Basket analysis shall help to identify product association while pareto analysis shall help in focusing on critical factors contributing to the majority of outcomes. In order to take care of all the analysis, python libraries like seaborn, numpy, and pandas shall be used. Microsoft Excel shall also be implemented for the need of categorisation and sorting, when needed. By following the aforementioned approach, the project provides a concise summary of the key insights gained from the analysis. It also emphasises the practical implications and potential benefits of implementing the suggested recommendations.

6. Expected Timeline

6.1 Work Breakdown Structure

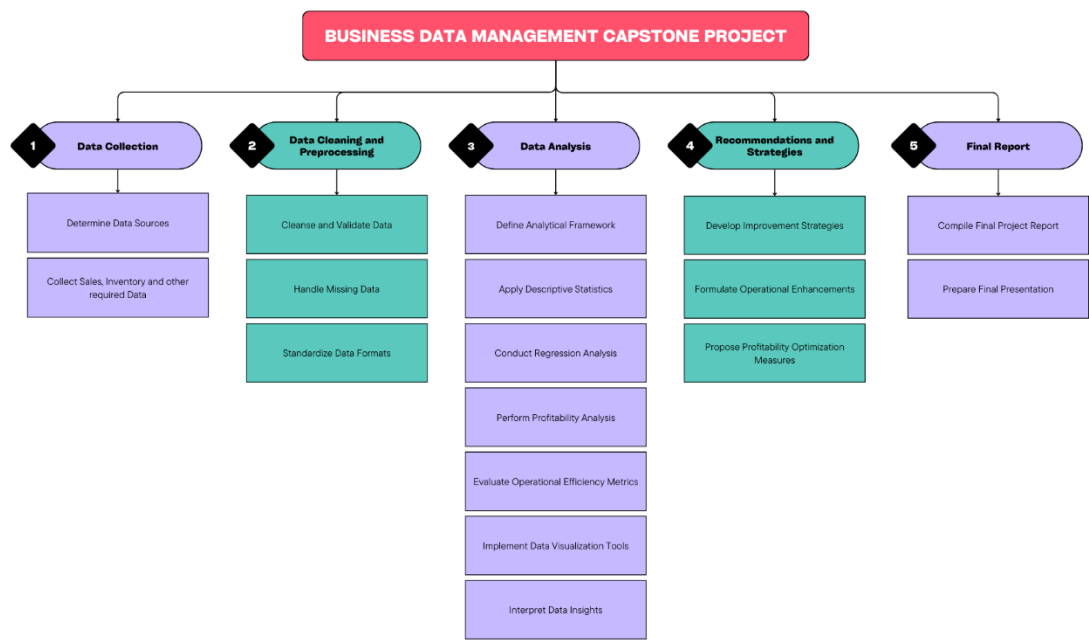


Figure: Work Breakdown Structure categorizing every task in the project.

6.2 Gantt Chart

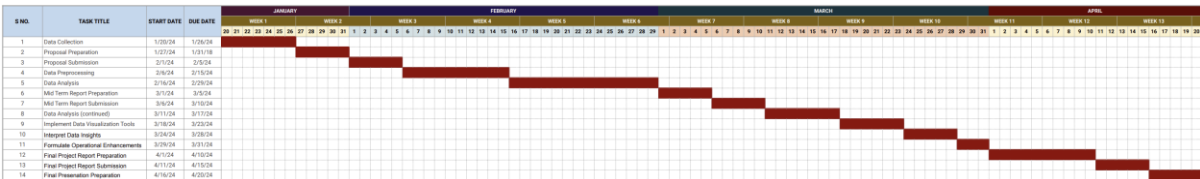


Figure: Gantt chart visualizing the expected timeline for project completion.

8. Expected Outcome

1. The project will deliver actionable insights derived from comprehensive data analysis, leading to streamlined operational processes within the Medical Store. Optimization strategies, informed by key findings, will contribute to increased efficiency in sales, inventory management, and overall business operations.
2. Through advanced statistical and mathematical analyses, the project aims to identify and address factors impacting profitability. Implementing recommendations arising from the analyses, such as pricing adjustments, inventory prioritization, and targeted marketing strategies, is expected to result in improved gross and net profit margins for the Medical Store.
3. The project's outcomes will provide stakeholders with a data-driven understanding of the Medical Store's dynamics. The synthesis of findings into actionable recommendations, presented in a strategic roadmap, will empower decision-makers with the insights needed to make informed choices for sustained growth and competitiveness in the pharmaceutical retail sector.