REVITALIZING SALES AND INVENTORY MANAGEMENT THROUGH DATA ANALYSIS

A Proposal report for the BDM capstone Project

Submitted by

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Declaration Statement

I am working on a Project Title “Revitalizing Sales and Inventory Management through Data Analysis”. I extend my appreciation to Popular Electricals and Saniwares for providing the necessary resources that enabled me to conduct my project.

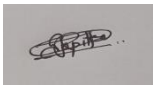
I hereby assert that the data presented and assessed in this project report is genuine and precise to the utmost extent of my knowledge and capabilities. The data has been gathered through primary sources and carefully analyzed to assure its reliability.

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 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.



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Executive Summary

This project focuses on analyzing data collected from an electrical shop that sells various electric supplies, devices, and sanitary wares. The shop operates in the B2C retail category and is located in Erattupetta town, Kottayam District, Kerala.

The organization faces several major business issues:

- Sluggish sales over the past few years
- Inventory management challenges
- Intense market competition

To address these issues, the following data analysis strategies are proposed:

- Analyzing sales data to identify high-revenue products
- Comparing stock levels with purchase data to improve inventory management
- Conducting a market study to identify competitive strategies and implement improvements

Implementing these strategies could transform the business into a more profitable venture.

Organization Background

Popular Electricals and Sanitarywares, originally established as Popular Electricals by G. Suresh Babu in 1998 as a modest 600 sq ft shop. In 2008, the business relocated to a larger 2000 sq ft space beside the main road and was rebranded as Popular Electricals and Sanitarywares.

The shop specializes in selling a variety of products, including:

- Electrical Components: cables, sockets, power plugs, switches, pipes, fan regulators, metal boxes, etc.
- Electrical Devices: fans, lights, electric iron boxes, electric heaters, induction cookers, etc.
- Sanitary Wares: closets, sinks, wash basins, showers, taps, etc.

Commercial Space of Popular Electricls and Saniwares

Problem Statement

After analyzing the data and discussing with the owner, the following problems were identified:

1. **Declining Sales**: The business has experienced sluggish sales over the past few years.
2. **Inefficient Inventory Management**: Poor inventory management is causing issues with both capital and storage space.
3. **Increased Competition**: The rise of e-commerce sites has intensified market competition.

Background of the Problem

- Declining Income: Over the past five years, particularly after the pandemic, the business has not been generating as much income as before.
- Economic Challenges: According to the owner, this decline is due to the financial hardships faced by the general public and a decrease in construction activities. Contributing factors include new government regulations in the construction industry, rising material costs, and high labor expenses.
- Inventory Management Issues: The shop has been using eZCom software for billing for the past 15 years, but it has not been effective in updating stock accurately. They are now transitioning to Tally, which simplifies stock management by allowing easy viewing of opening and closing stocks with a single click.
- Manual Stock Checking: Currently, product purchases require manual shelf checks,

which is cumbersome given the shop's inventory of around 3000 products. This often leads to overstocking or stock outs.

- Storage Constraints: Many of the products sold, such as water tanks, closets, pipes, and fans, are large in size. Overstocking these items can result in inadequate storage space and capital being tied up in unsold inventory.
- Online Competition: The rise of e-commerce has increased competition. Frequent advertisements and offers from online retailers attract customers, reducing the shop's customer base and revenue.

Problem-Solving Approach

Data Collection

Given the extensive range of products, I focused on collecting data for 10 key products over a period of 6 months. Since these products come in various brands, I also gathered brand-specific information. The main fields of data collected include:

- Opening stock and closing stock
- Sales and purchases
- Cost price and selling price

Data Analysis

After cleaning the data, I will calculate several key metrics:

- Revenue
- Profit
- Expenditure
- Gross profit
- Average inventory
- Stock outs
- Overstocking

Additionally, by collecting data on various expenditures such as employee salaries, electricity bills, rent, and transportation, I can determine the net profit of the firm. This comprehensive analysis will help identify and address the business's key issues.

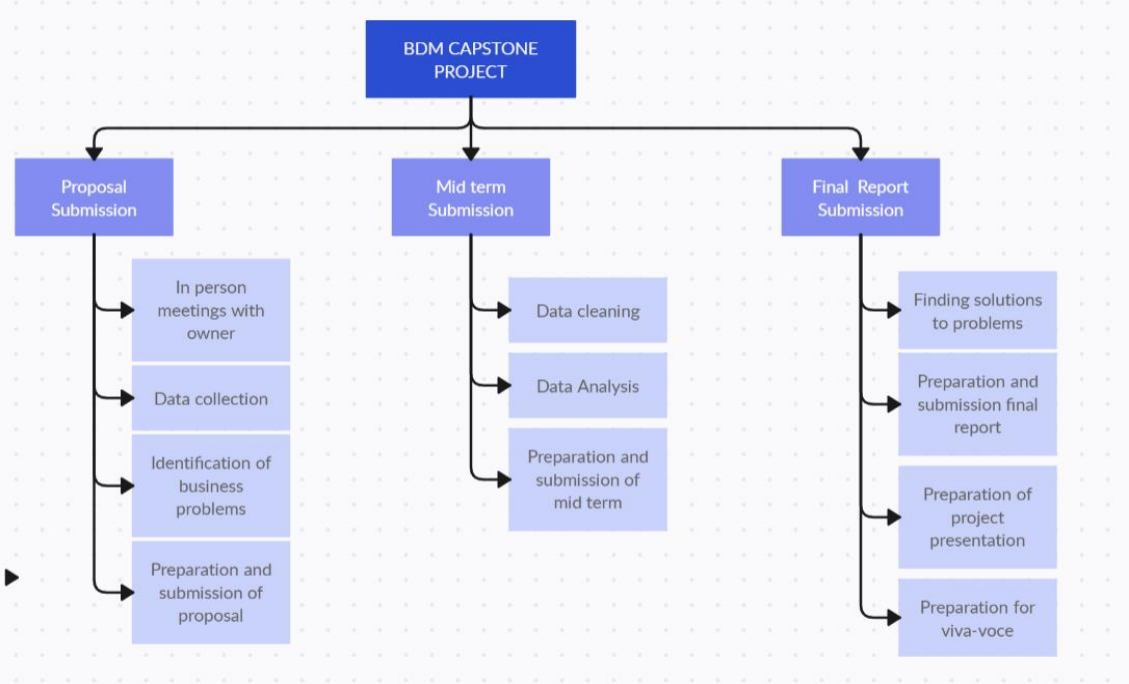
Details about Analysis Tools with Justification

Given that the data spans over a period of time, I have chosen to use Microsoft Excel for processing it. The following tools and techniques will be employed in the analysis:

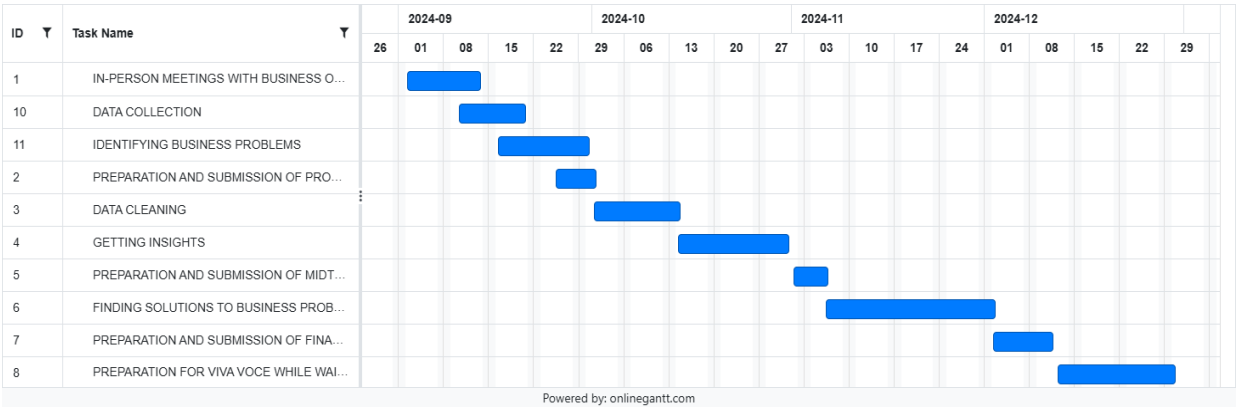
- Microsoft Excel: The primary tool for data processing and analysis.
- Pivot Tables with Filtering: To gain a better understanding of key products, pivot tables will be used to summarize and filter data efficiently.
- Excel Functions: Functions such as VLOOKUP, COUNTIF, and SUBTOTAL will be crucial for data manipulation and analysis.
- Data Visualization: Various charts and plots, including pie charts, bar charts, scatter plots, and histograms, will be used to visualize the data and uncover insights.

Expected timeline

Work breakdown structure



Gantt chart



Expected outcome

- Identify Key Products: Gain a better understanding of the products that generate the most and least revenue.
- Improve Inventory Management: Develop strategies for more effective inventory management.
- Support Business Growth: Assist the owner in tracking data to facilitate efficient business growth.
- Increase Profitability: Identify reasons for the decrease in profit and provide suggestions to enhance profitability.