

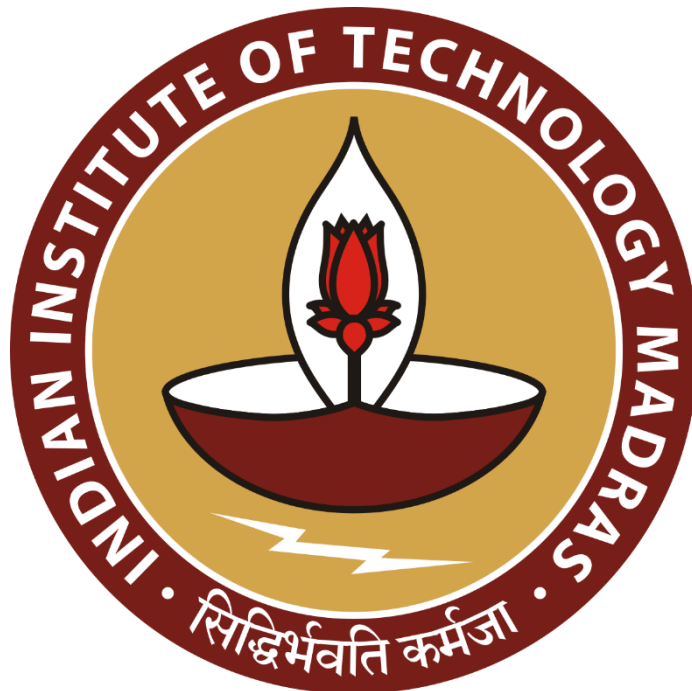
# **PRICE TREND ANALYSIS & DEMAND FORECASTING FOR A WHOLESALE BUSINESS**

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

Submitted by

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### **Declaration Statement**

I am working on a Project titled "Price Trend Analysis & Demand Forecasting for a wholesale business". I extend my appreciation to mr. Saday Shankar 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.

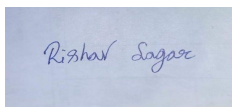
Additionally, I affirm that all procedures employed for the purpose of data collection and analysis have been duly explained in this report. The outcomes and inferences derived from the data are an accurate depiction of the findings acquired through thorough analytical procedures.

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 rectangular box containing a handwritten signature in blue ink that reads "Rishav Sagar".

Name: RISHAV SAGAR

Date: 01/07/2024

## **1 Executive Summary**

Mr Saday Shankar started the operations in 2000, it is a local level wholesale store located near Arwal more, Jehanabad, Bihar. He is serving the local community with his wholesale business which has products like sugar, edible oil, maida and flour etc .

A few years ago, many people started similar businesses, leading to increased competition around him, but in the current time due to limited capital and price volatility the business is struggling a lot, Which is affecting the management of the business. They are not able to maintain the profit margin and stocks at the right level, which is affecting their revenue and also their growth is declining.

With The help of sales data analyzing the price trend and forecasting the future demand of products, in that way the problem of business is addressed and, this analysis helps maintain optimal stock levels and pricing. For this analysis we took 3 months sales data for calculating the average inventory days to maintain the inventory with the right amount of products.

This will help the business to grow and run efficiently with limited resources and capital, and not facing problems of profit margins and stock up and focus on growing the business and generating high revenue.

## **2 Organization Background**

The wholesale store is run by Mr Saday Shankar. It is a B2B business. He started the business in 2000. It is a local wholesale business store of sugar, edible oil, maida and flour etc. located at Arwal more, Jehanabad, Bihar. He runs the store by himself, every morning at 9 a.m he opens the store and closes it at around 5 to 6 p.m. In order to reduce the extra expenses, there is no additional staff at the store. With monthly revenue of approx 6 to 8 lakhs, It deals with the local kirana stores, hotels, sweet shops and ice-cream factories etc. He started the business at that time there was no local wholesale market or business and there was not any competition.

## **3 Problem Statement**

- 3.1 To maintain the right price level considering the price volatility of the product to increase the profit margins.
- 3.2 Effective management of working capital invested in inventory is crucial for a business to operate efficiently with limited capital..

- 3.3 Maintain stocks at the right time and right price to avoid stock up and losses on profit margin.

## **4 Background of the Problem**

The wholesale store is run by Mr. Saday Shankar. He started the store early in 2000, there was no competition around him, but slowly many people started similar businesses, leading to increased competition. The wholesale business of sugar is very volatile because the price of the sugar varies daily, as the production and demand of sugar varies. Sometimes the price of sugar decreases below the purchasing rate and sometimes goes very high, so maintaining the right selling price of all the SKU is very crucial. His old method of running the business is, he used to fill the inventory at intervals of every month, as the demand of the market and unaware of the method of demand forecasting or price trend analysis. So as time passed he started struggling to compete with competitors to maintain the profit margins and capital invested in stocks.

## **5 Problem Solving Approach**

To solve the problem, I took the 3 months sales data and billing data for analyzing the price trend of each SKU for better analysis. This inclusive data is crucial for accurate price trend analysis.

Here the software I am going to use for my analysis is Microsoft Excel. And BI tools like Tableau or Power BI for data visualization. Then I will do data cleaning like the price of sugar is very fluctuating so I took the average(mean) pricing of the product. Clean the collected data to ensure accuracy. This involves removing duplicates, correcting errors, and dealing with missing values.. Examine the cleaned data to find trends and patterns. which helps to keep updated for trends in demand cycles, price swings, and sales volumes. Bar charts and line graphs can be used to show these patterns. Understanding market behavior to fulfill the market demand.

To project future demand and pricing, I have used different forecasting techniques like moving averages, exponential smoothing, and ARIMA (AutoRegressive Integrated Moving Average). This can also indicate the suitable time to fill the inventory at the right price and right amount, to avoid situations like losses in profit margins and unavailability of right quality and quantity of products. And eventually this will help to grow the business.

## 6 Expected Timeline

### 6.1 Gantt chart:

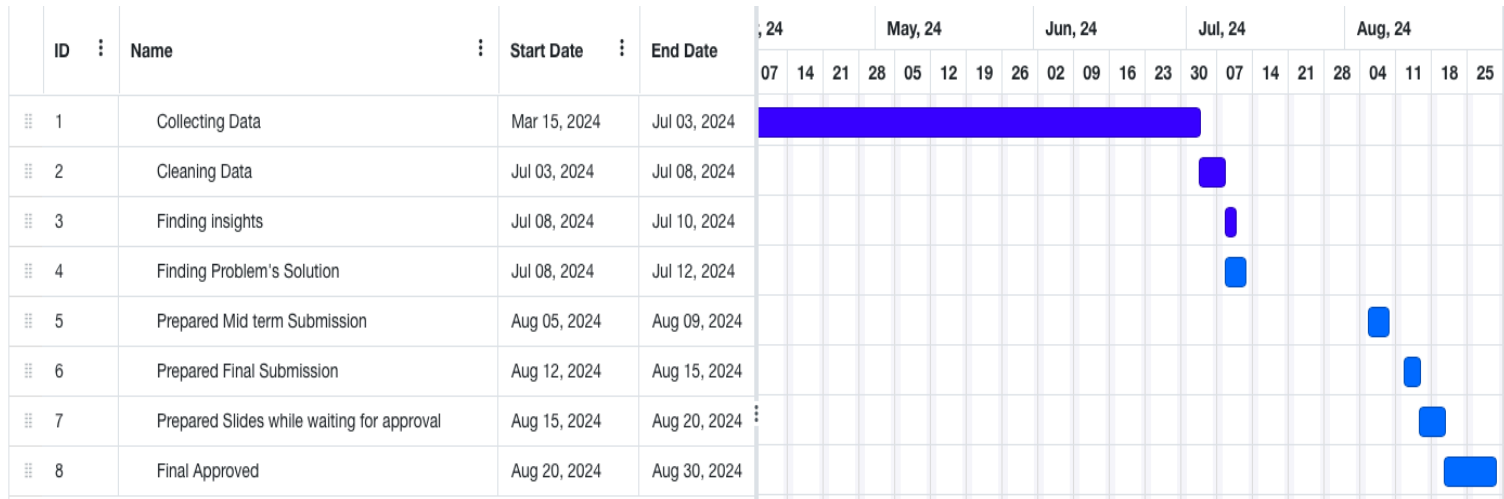


Figure 1 Expected timeline for completion of project.

## 7 Expected Outcome

- 7.1 with the help of price trends can be able to know the suitable time to buy more stock like whenever got to know that price is likely to increase will stock up and know the price likely to decline will clear the stock keeping safety stock.
- 7.2 It gives the future demand which helps to calculate safety stock which will make sure that customer never faces stockouts.