

# **Enhancing Profits through Demand Forecasting and Strategic Inventory Management**

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

Submitted by

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# Declaration Statement

I am working on a Project Title “Enhancing Profits through Demand Forecasting and Strategic Inventory Management”. I extend my appreciation to **SRJ Enterprises**, 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 analysed to assure its reliability.

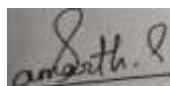
Additionally, I affirm that all procedures employed for the purpose of data collection and analysis have been duly explained in this report. The outcomes and inferences derived from the data are an accurate depiction of the findings acquired through thorough analytical procedures.

I am dedicated to adhering to the 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.

Signature of Candidate:



Name: Samarth S

Date: 3<sup>rd</sup> Feb 2025

# **Executive Summary**

SRJ Enterprises, located at E-108/1, Munirka Village, New Delhi is a small shop which sells stationary supplies and operates in the B2C segment. The store has been facing difficulties regarding the efficient management of the inventory stock and understanding of seasonal demands.

The main difficulty they are struggling with is not able to manage the inventory stocks efficiently, leading to increased stock levels. Furthermore, inadequate prediction of demands which are seasonal. These problems lead to either overstocking or understocking of the supplies, impacting revenue and sales because of missed sales opportunities due to the mismanagement of inventory.

The core purpose of this project is to help the business to overcome the inefficient inventory management and issues related to forecasting seasonal demands. By collecting and analysing past data of sales, seasonal trends and customer demands using tools like Excel and PowerBi. Additionally, the demands which are seasonal will be examined more efficiently to make inventory stocking strategy more aligned to demands.

By implementing these strategies correctly, SRJ Enterprises can overcome the stock shortages, excess inventory stock, minimize their cost of holding inventory and optimize the inventory according to seasonal demands. The goal is to improve the cashflow, profit and reduce sale missing opportunities.

## **Organisation Background**

SRJ Enterprises, located at E-108/1, Munirka Village, New Delhi, is a retail shop selling stationary, school and office supplies, operates in B2C segment. It was founded by Mr. Ramesh Chand Jain in 2002. The shop is well reputed over the years for providing quality products and supplies to students and working professionals at affordable prices.

SRJ Enterprises offers a wide variety of products ranging from notebooks, art supplies, writing instruments to office supplies. With its excellent customer service, it has established well

trusted name in the local market. This store has been everyone's go to shop for getting stationary supplies, due to availability of quality and affordable goods.

The shop is currently run by the owner Mr. Ramesh Chand Jain himself. With experience of over two decades in the stationary market, SRJ Enterprises are willing to adapt to changes that are required according to the market trends by still focusing on their main motive of customer satisfaction.

## **Problem Statement**

Effective inventory management is an essential part of any business, without it the business might not perform, even though the owner of the business has rough idea regarding the demand pattern and the inventory management. But still there are inefficiencies and are facing challenges due to improper inventory management. The key areas with problem are identified as follows:

- 1. Inefficient stock management:** There is a lack of efficient and structured management of the stock inventory, due to which some products are overstocked and are present in the inventory for longer period of time whereas some products are understocked, failing to meet the market demand.
- 2. Improper Forecasting of Seasonal Demand:** The demand for some product increases across certain seasons, making it difficult to maintain the stocks according to the fluctuating demand. Therefore, a forecasting model should be developed in order to track the demands, so that store would be prepared for the seasonal spike of sales and would not miss any sales opportunity due to stockouts.
- 3. Lower stock holding costs:** Increased amount of unsold products in the inventory leads to increased cost of storage, damaging of products and blockage of capital. Understanding the demand and supply balance based on the prior sales is important

to optimize the stock levels, reduce wastage of goods and ensure only the required items are stocked and maintained in the inventory.

## **Background of the Problem**

**Inefficient stock management:** The major cause for this problem is not having a proper mechanism for keeping the track of stocks. Handling the records inconsistently and manually making it difficult to visualize the movement of the products, resulting in errors during the restocking of the inventory. Various external factors also affect the mismanagement of the inventory such as change in market and customer trends; therefore, a proper analysis of past sales data should be there to minimize problems related to inventory.

**Improper Forecasting of Seasonal Demand:** Depending on traditional forecasting methods and not implementing forecasting based on past sales data and not analysing through sales pattern causes improper forecasting during seasonal fluctuation of demands. High demand seasons such as school reopening periods requires proper forecasting and management of inventory to continue the operation of the store smoothly and avoid missing sales opportunities.

**Lower Inventory Holding Costs:** Inefficient restocking strategies due to improper optimization system for inventory, making some products being over-stocked or under-stocked, leading to increased cost of inventory maintenance affecting the overall profitability of the business. Furthermore, lack of understanding in product movement pattern, analysis of sales trend, inadequate forecasting of seasonal demands contributes to uneven inventory holding. External factors such as demand fluctuations, inconsistencies in the supply of goods etc, require proper analysis of trends, demand, sales, tracking of available goods in the inventory and restocking of required items.

The inadequate management of stocks, improper demand prediction are affecting the profitability of the business. In order to overcome these problems proper strategic approach should be there based on evaluating and analysis past sales data and demand pattern.

# **Problem Solving Approach**

To assist the problems faced by SRJ Enterprises efficient management of stocks, the primary focus would be an approach based on past sales data to improve the stock level management, predict seasonal demands, reduce stock holding costs and increase the profitability of the business. The problem-solving approach involves below mentioned techniques to maximize the performance of the business.

## **1. Methods Used**

To improve the efficiency of stock management, few key techniques will be used.

- **ABC Analysis**, divides the inventory into three segments: A (high-value items), B (moderate-value items), C (low-value items). By applying this method, it ensures high-value goods are stocked properly and on time while reducing excessive stocking of low-value goods to optimize inventory levels. With addition of supply chain strategies such as **Demand-Driven Replenishment (DDR)**, restocking of inventory levels would be based on demand patterns by customer would help to get better control over the inventory.
- **Safety Stock Calculation**, another important method to ensure that required items should be available even during seasonal demand spikes, for products with high demand, buffer stock will be maintained by analysing past sales pattern to prevent loss of sales, helping the business to predict demand spikes efficiently.

## **2. Intended collection of Data**

The most crucial part of solving a business problem is data collection, to enhance the forecasting of seasonal demands and proper inventory management **Sales record** will be collected from the business owner, it would help to identify the product moving patterns to get information regarding products which are best selling, slow-moving etc. By analysing the sales record we'll be able to identify the seasonal demand spikes, to predict future demand spikes and maintain the inventory accordingly to efficiently maintain the flow of sales.

Inventory records would be required to get insights regarding the stock levels restocking decisions by the owner. This would give a brief info on the products which are overstocked and gets out of stock when in demand, would help to initiate different strategies to optimize the inventory to maintain balance between demand and supply and lower the cost of stock holdings due to overstocking of low demand products.

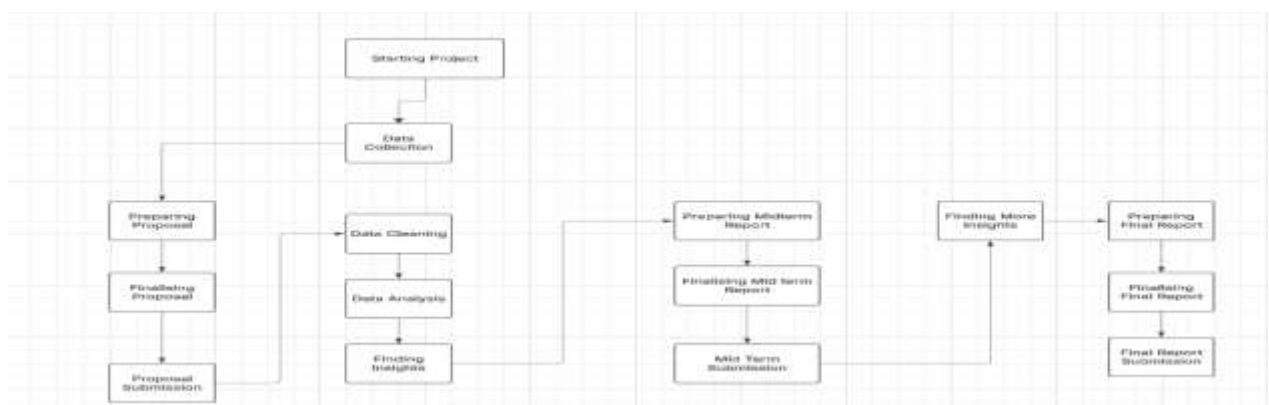
### 3. Tools used

- Microsoft Excel: It will be used to perform analysis of demand trends, organizing the raw data of sales into more structured format, using pivot tables for visualizing and analysing the patterns in more efficient manner.
- Power BI: For visualizing the data in more structured and interactive manner. Helping to make decisions and strategies based on findings in a easy to understandable pattern.

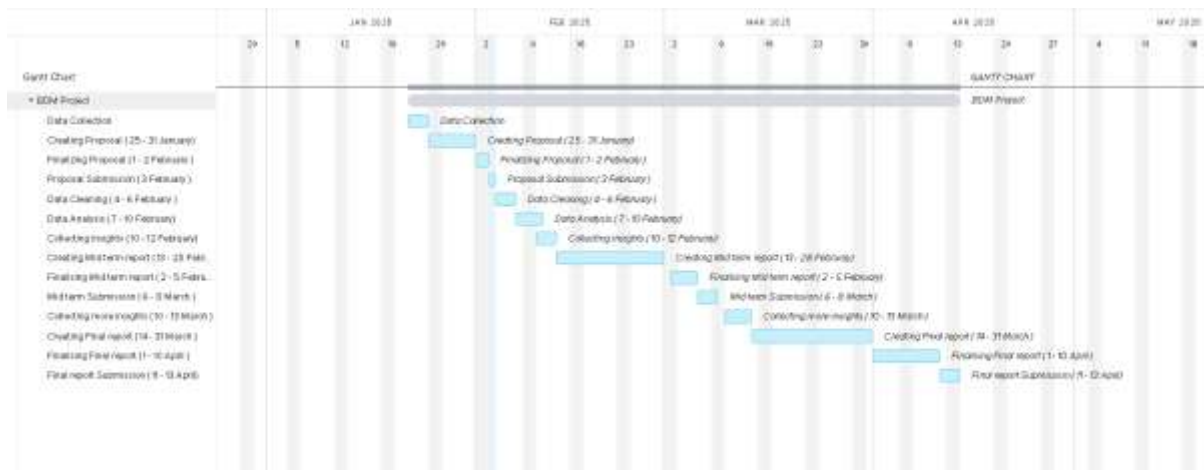
By implementing the above-mentioned strategies and approaches with the help of proper tools will help SRJ Enterprises to reduce their ongoing difficulties and increase their profitability and sales opportunity, by improving the demand prediction and stock holding techniques.

## Expected Timeline

### Work Break Down Structure



## Gantt Chart



## Expected Outcomes

- Better Stock Inventory Management:** With implementation of the strategies discussed, the stock levels will be optimised and reduce overstocking of low demand goods; by analysing the past sales data we expected to find goods which have higher demand during certain periods and restocking them before the demand spikes in order to maximize the profitability and reduce missing sales opportunities.
- Improved prediction of seasonal demands:** With proper analysis of demand patterns, peak sales season, we will be able to predict future demand spikes and restock high demand goods before the peak season. Preventing stock-outs during peak season and minimizing inventory during off – peak season.
- Reduced stock hold cost:** With the use of strategies like ABC Analysis and proper tracking of stocks, we can improve the efficiency of the inventory by restocking goods which are high in demand and restocking low demand goods only when they move out of the inventory to avoid overstocking of unwanted goods, which will eventually lower down the cost of maintaining the inventory and lower goods damage due to available in the inventory for prolonged period of time.