OPTIMIZING INVENTORY AT EFFICIENT LEVEL

FOR SMALL KIRANA STORE

A Final report for the BDM capstone Project

Submitted by

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Declaration Statement

I am working on a Project titled “Optimizing Inventory at Efficient level for a small Kirana store”. I extend my appreciation to mr. Saday Shankar for providing the necessary resources that enabled me to conduct my project.

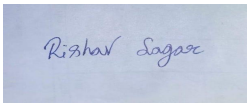
I hereby assert that the data presented and assessed in this project report is genuine and precise to the utmost extent of my knowledge and capabilities. The data has been gathered from primary sources and carefully analyzed to assure its reliability.

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: 

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OPTIMIZING INVENTORY AT EFFICIENT LEVEL FOR SMALL KIRANA STORE

1 Executive Summary

Ajay Kirana Store has started their operation in 2005. It is local convenience Kirana store located Near Court, Jail Road Masaurhi, (Patna). Serving the local communities with range of product Like Snacks, Rice, flour, lentils and household items.

Before Covid their business was running well. But in present time due to limited capital the business is struggling a lot. Which cause huge problem in managing their inventory. Also, their customer is facing lot of Stock up. They are not able to maintain stock at right level. Which is affecting their revenue and also their growth is declining.

The issue will be addressed by analyzing the different type of data like with the help of sales data we can forecast the future demand of SKU. Which will help to maintain the SKU at right level. Also, with the help of sales data of SKU and total SKU present at start date and stock fill up data for the next six weeks. We can calculate the average inventory days which will help to invest capital in inventory efficiently.

This will help the business to run efficiently with the limited available capital. And also customer will not face stock up. And also business can focus more on SKU which is generating high revenue than SKU generating very little revenue.

2 Organization Background

Ajay Kirana store run by Ajay Prasad is B2C business. Started their operation in 2005. It is a local Kirana store located at Masaurhi, Patna. It serves the local communities with range of product like Snacks, Household items, Cereals etc. In past time there was only few Kirana store nearby so there was no competition and business were running well. It is one of the oldest Kirana store in that location.

3 Problem Statement

3.1 To Maintain Stock in inventory at right level so that customer don't face stock up.

3.2 To maintain working capital which is invested in inventory so that with less capital the business can run efficiently.

3.3 To Maximize profit with maximizing revenue of the SKU having high margin.

4 Background of the Problem

Ajay Kirana Store run by Sri Ajay Prasad. As this Kirana Store is one of the oldest Kirana store in that locality. It was running so efficiently. He used to fill up inventories once in every two days by doing shopping from nearby wholesale market. To meet customer demands so that customer never faces Stock up. There is not any record keeping method to know about inventory he used to see SKU whatever he finds that is getting Stockout he writes it and order next day from wholesale. This conventional method of running shop need more capital as there is not any demand forecast or he is not completely aware of the inventory days of SKU. Also, there is lot of hard work needed as he is getting older, he can't do that much work as he used to do it earlier. Also, working capital of his business reduces due to loss incurred in covid times. That's where the problem arises of stock out. And also, revenue is declining. He is also not able to refill the stock at right level at right time.

As per the consumer behavior, consumer usually preferred to shop from the store where they get all the things at one place whenever they require.

5 Problem Solving Approach

To Solve the problem, I have collected initial quantity of all the SKU which are present in the store at start of the research. And for next 6 weeks I am going to collect sales data of each SKU every day. Also required the refill data of each SKU whenever they do refill it.

To collect the data, method I am going to use is first day I have listed total 50 SKU their selling price and the opening stock on that day. And for next six weeks I will go and collect data for the quantity of the SKU sold. Also, if SKU has been refilled will take data for that also. After that I will update all data on excel sheets and clean the data if any outliers. And then do Analysis.

With the help of the above data, I will first do Pareto analysis of Revenue and volume. To know which of the SKU are contributing more on the overall revenue. And to plan better inventory management system.

We will also do trend analysis so that with the 6-weeks sales data we can predict future sales. Which helps us to manage working capital and invest more in the inventory whose demand is more and who is contributing more on revenue.

With the help of open stock and closing stock and sales of the data for each SKU we can get average SKU days by which we can focus on the fast-moving SKU and focus more on that invest more capital on that and for slow moving SKU we will focus less, so that the SKU can be manages at efficient level without investing more money on slow moving product. And also ensure that no stock out occur.

There are two metrics here one is working capital management and other is to maintain stock at right level to efficiently meet the demand of the customer. We will try to get optimize value between these two tradeoffs with help of the 6 weeks data using appropriate statistical analysis.

6 Expected Timeline

6.1 Gantt chart

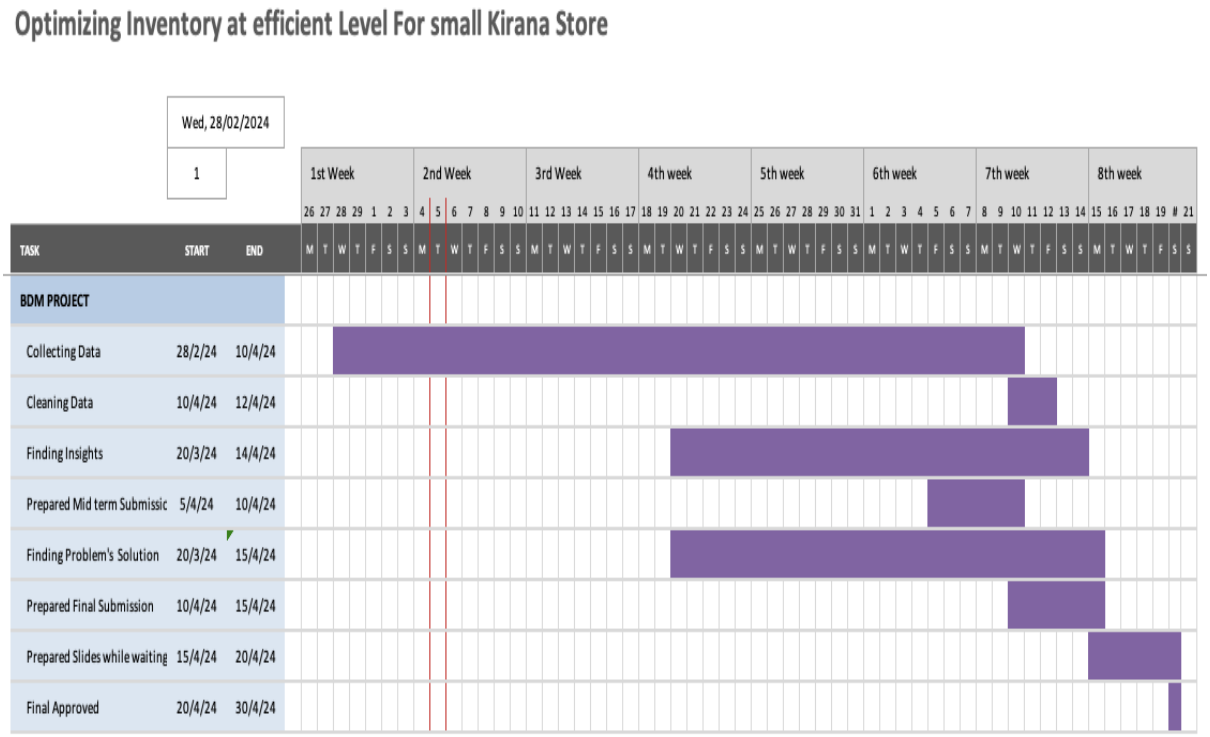

Figure 1 Expected timeline for completion of project

7 Expected Outcome

7.1 Better working capital management by investing in SKU whose revenue is more.

7.2 Better inventory planning and focus more on the SKU whose sales is more and ensure that no stock out occur.