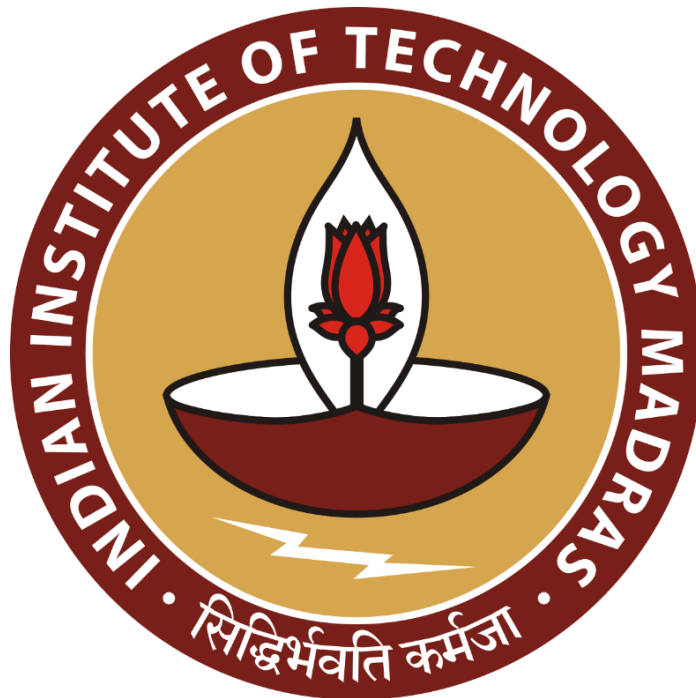


Data Driven Business Optimization for Kirana Store



A Proposal report for the BDM capstone Project

Submitted by

Name- Nishant Pradip Kumbhar

Roll number :

23f1002675

IITM Online BS Degree Program,

Indian Institute of Technology, Madras, Chennai Tamil Nadu, India, 600036

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Declaration Statement

I am working on a Project Title **Data Driven Business Optimization for Kirana Store**. I extend my appreciation to **Bansal Kirana Store** 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.

Signature of Candidate: (**Digital Signature**) Name:

Nishant Pradip Kumbhar

Date: 3/11/2024

1. Executive Summary and Title

The Project focuses on Bansal Kirana a small ,family run grocery shop located in Kiwale , Ravet ,Pune . As a B2C business, Bansal Kirana deals in bulk quantities of essential grocery items like rice, wheat and dry fruits ,serving regular customer base

The store faces several business challenges , mainly related to limited profit margin due to high inventory cost . Overtime excess stock has led to increase storage expense and occasionally expired products which impact profitability . Additionally a lack of real time data on fast-moving and slow-moving products has led to inefficient stock management

To Address these issues we will analyze the store sales, inventory and customer data using various analytical methods. The key approaches include :

- **SKU Optimization** : Identifying underperforming items and recommending to keep less number of these SKUs
- **Inventory Optimization**: Setting reorder points and stock levels to minimize stockouts or overstock situation
- **Revenue Tracking** : Implement regular revenue and profit tracking to gain better insights into high performing products and seasonal trends

The expected outcome of this problem is to reduce excessive inventory holding cost, optimize the SKUs and improve profitability

2. Organization Background

Bansal Kirana Store, Established in 2001 , is longstanding grocery shop located in VikasNagar, Kiwale, Ravet , Pune . It has been serving the local community for over two decades, operating primarily with traditional business practices . The Store has small but loyal customer base , relying on word of mouth and reputation built over the years.

With only one employee managing operation ,Bansal Kirana Store offers home delivery within a 5 Kilometer radius, catering to customer who seek convenience for staple items like rice, wheat and other essential groceries . The stores inventory includes a limited but focused selection of goods mostly covering daily essential and bulk food items commonly needed for households . Despite its steady customer base, the store faces challenges in modernizing its operation and improving profitability . A traditional approach inventory and sales management has limited its efficiency presenting and opportunity for data driven approach

3. Problem Statement

The business owner was satisfied with the number of customers and revenue generation of shop . The major challenge was inventory management ,SKU profitability and revenue tracking .

Below is the list of problems faced by shops

1. **Excessive Inventory Cost** : Bansal Kirana Store holds excess stock due to inconsistent demand tracking , leading to higher inventory holding cost and risk of spoilage .This Project aims to analyze sales and demand trends patterns to recommend optimized inventory levels
2. **Limited SKU profitability** : With wide range of variety of SKUs the store struggles to identify profitable items from low performing ones ,affecting overall profit Margins . By analyzing SKU turnover and profit margins . By analyzing SKU turnover and profit margins , this project will help determine the optimal product mix for increased profitability.
- 3.**Ineffective Inventory Tracking** : The current revenue tracking is manual and lacks regular monitoring , making it difficult to evaluate monthly profitable trends . This Project will implement a systematic revenue tracking approach to provide better insights into sales and profitability over time

4. Background of the Problem

Bansal Kirana Store at VikasNagar , Kiwale , Ravet ,Pune is running traditional business since its inception in the year 2001. Though the store has unbroken customer base , its current business operations are somewhat restricted to modernization more so in the

field of inventory management ,SKU profitability and revenue . Lacking a proper inventory policy leads to the accumulation of unwanted stocks, which result in high holding cost and the further danger of products getting obsolete . This is a problem caused by erratic demand forecasting and limited insight into product turnover , which limits the stores ability to sustain optimal stock levels.

Among other contributing factors ,the store suffers because it lacks electronic mechanism to monitor and track sales as well as inventory levels . Within the organization , a primary hindrance is a shallow labor force, whereby there exist a single employee managing these departments inventory , sales , and deliveries . Other contributing factors include a varied trend in demand for services while competition from more substantial and modern retail stores limits and erodes the company capability to maintain low and fair prices for its customer while enjoying some profit.

The internal and external factors have limited cash flow , thus limiting the possibilities of reinvestment in the business . The above can be tackled and this would make the store have improve financial stability and minimizing cost associated with excess inventory ,making room for changes needed to suit new demands at the market.

5. Problem Solving Approach

To effectively solve the challenges at Bansal Kirana Store ,various data analysis, visualization and decision support tools will be implemented alongside the outlined approaches. These tools will help streamline processes , enhance decision making and provide clear insights into the business operational efficiency and profitability.

1. Inventory Optimization

To Optimize inventory ,tools such as Microsoft Excel and Google sheets will be used initially for data collection and organization , enabling basic data manipulation and analysis . Python with libraries like Pandas and Numpy will support analysis and demand forecasting using historical data . These visualization will enable clear communication of stock levels and trends , making it easier to determine reorder points and safety stock levels.

2. SKU Profitability Analysis

For SKU profitability analysis, Python will be essential , particularly using libraries like Scikit learn for pareto analysis and other clustering techniques that identify high performing items . Excel will be also helpful in calculating profit margins and turnover rates .These tools can highlight the most profitable SKU and low performing items , enabling data driven decision making for product selection. By Implementing the tools , the owner can make informed choices on SKUs, contributing to profitable product business.

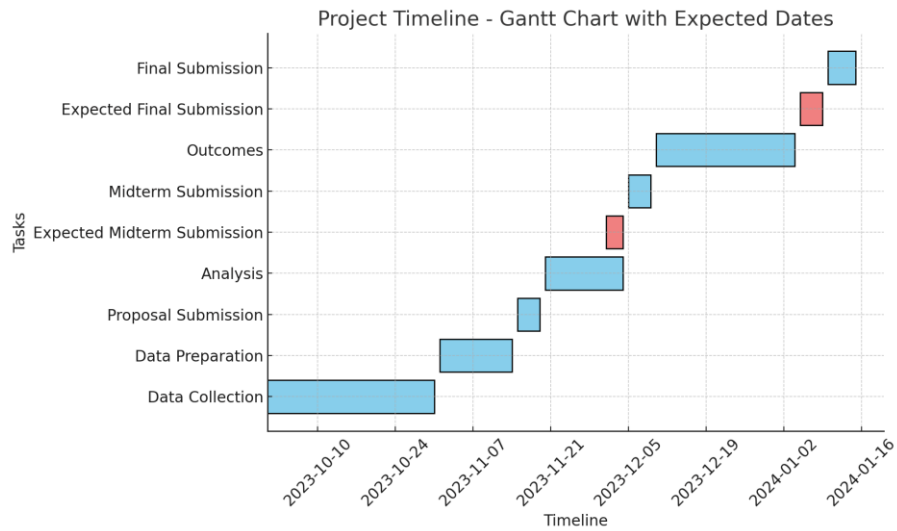
3. Revenue Tracking and Financial Analysis

To set up an efficient revenue tracking system, Python and Matplotlib can create customized revenue graph .while Tableau offer easy to understand dashboards showing sales patterns, daily revenue and gross margins .These visuals insights will enable the store to monitor trends predict future sales, and strategically respind to changing customer demand.

Through these tools we can gain real time insights and scalable system to address the challenges .

6. Expected Timeline

The project is expected to complete till January 15



7. Expected Outcome

The expected outcomes of this project aim to optimize Bansal Kirana Store Business operation by improving inventory management understanding sizes trends and enhancing revenue tracking.

1.Enhanced Inventory Planning: By analyzing inventory turnover rates and demand patterns , the store will gain insights into optimal stock levels for each products . This approach will reduce the overstocking or understocking of stock .

2.Insights on High Selling Products : Through data analysis, the store will identify which products have the highest demand . This insight will allow for focused restocking efforts , helping the store in prioritizing popular items .

3.Data Driven Revenue Tracking : By Establishing a structures revenue tracking system , the store will be able to access daily, weekly and monthly performance trends .

These outcomes collectively equip Bansal Kirana Store to enhance customer satisfaction through better availability of in demand products and efficient business operation

