

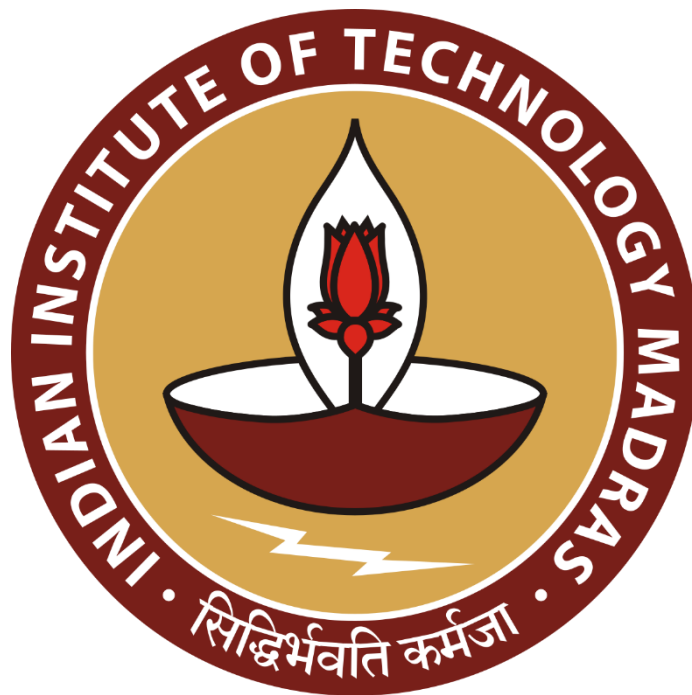
InventoInsight: Kirana Store Data Analysis & Optimization

A Proposal report for the BDM capstone Project

Submitted by

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Declaration Statement

I am working on a Project titled **InventoInsight: Kirana Store Data Analysis & Optimization**. I extend my appreciation to Shiva Sai Kirana , for providing the necessary resources that enabled me to conduct my project.

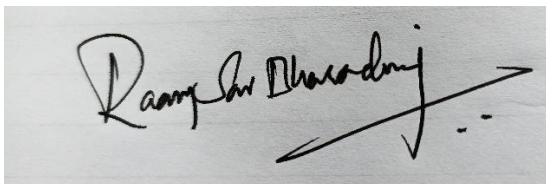
I hereby assert that the data presented and assessed in this project report is genuine and precise to the utmost extent of my knowledge and capabilities. The data has been gathered from primary sources and carefully analyzed to assure its reliability.

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.

A handwritten signature in black ink on a light-colored background. The signature is written in a cursive style and appears to read 'Ramy Sai Bharadwaj'. There is a long horizontal stroke extending to the right from the end of the signature.

Signature of Candidate

Name: Miryala Raam Sai Bharadwaj

Date: 04/10/2023

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Executive Summary :

The store from which I have collected the data is a Small-Size Kirana store located in Nalgonda, Telangana.

The Primary reasons for me to select that particular store are :

- Store is located in my community.
- Size and Scale of the business is in my range.
- Owner co-operation to share his business information/data.
- I purchase my daily products in that store.
- He understood my proposal and accepted it quickly.

Data Collection :

For the data collection I personally collected the data from the store owner using :

- Store Record Books

Till date, I have collected a Month (31 Days) of data and will continue to collect until a meaningful conclusion can be derived from the business information/data.

The following are the product's data which I have collected :

- Rice
- Atta
- Sugar
- Oil
- Ghee
- Dairy Products
- Biscuits
- Dal
- Dry Fruits

Organization Background :

Name : Shiva Sai Kirana

Owner : Bikkumalla Nagaraju

Address : 6-1-218, Ramgiri, Nalgonda, Telangana – 508001

- Shiva Sai Kirana Shop specializes in the sale of daily use products such as Rice, Atta, Sugar, Oil, Ghee, Dry Fruits Etc...
- This Retail shop was established in 2016. The proprietor of the store has put a total of two lakhs into the business, with some of that money going toward variable assets like the merchandise.

- As a result of my conversation with the owner of the store and some analysis on my part, I have discovered that the store was openly fairly well before the increase of online marketing system and since then there is a tremendous fall down in sales and profit margins.

[illegible]

(i) *Sales Record Data*

(ii) *Shop Picture*

Problem Statement:

From my interaction with the owner of the store and some general observation of the store from quite a long time. I found out that the store has managed to build a good customer relation, and also managed to get a good sale, But

- Store is not performing up to expectations when it comes to overall profit(net profit).
- Stores inventory is always totally filled up which can cause problems like food wastage, product damage etc., which can be a huge loss of money to the business.

Hence the problem can be comprised by the following :

- Optimization of the inventory i.e., analyzing the store inventory using sales and intake
- Analyzing net profit margin and steps to increase the same
- How to increase reach if required by comparing store performance from its competitors

Background Of the Problem :

- After a detail discussion with the owner, I concluded that the store was performing well before the boon of online shopping, and as result of covid lockdown many of old customers have shifted to online shopping due to great discount and home delivery comfort
- I have also been a regular customer of this establishment and from what I have seen, I've concluded that despite the fact that the store is surrounded by two to three apartments and has a good amount of sales relative to its size and reach, and enjoys a high level of customer trust, the establishment is having trouble expanding its fixed assets.
 - Inadequate sales forecasting and improper management of inventories are two of the key factors that I believe contributed to the present state of things.
 - In addition, I have found that the pricing of dry fruits and oil in this particular store is somewhat more expensive when compared to those in other shops.

Problem Solving Approach :

The primary type of data that I collected is time-series data. So I will be having good scope for plotting all sorts of trend lines and scatter plots and using the intense power of pivot tables. I can plot pie charts and stacked histograms to find insights from the data that I have collected. I am planning to compute key financial quantities, which I help to solve this problem.

Although there were many products sold by the seller. I have planned to only collect data for making the process of data collection as well as analysis conclusive. The various variables that have been collected for the above products are :

- Cost price
- Selling price
- Quantity sold

- Quantity Bought

From the above 4 variables, I am planning to compute key quantities like Revenue, Expenditure, Gross Profit, Profit Margin, Average Inventory. Wastage due to damage and many more key financial ratios like ROCE (return on capital employed), Gross Profit Ratio, Net Profit Ratio etc.,

I am also planning to collect the information about the capital invested and also details about liabilities, fixed assets, variable assets, labor and transportation costs for calculating the above ratios.

Since the type of the data collected is majority time series data, I am using Excel to process the data.

Tools that are being used for the entire analysis are :

- Pivot tables for filtering and computing row/column wise
- Various Excell functions like VLOOKUP, COUNTIF, COUNTIFS, Boolean operations etc.,
- For data visualization, I am primarily using : Pie charts, Stacked Histograms, Histograms, Scatter plots, Heat maps etc.,

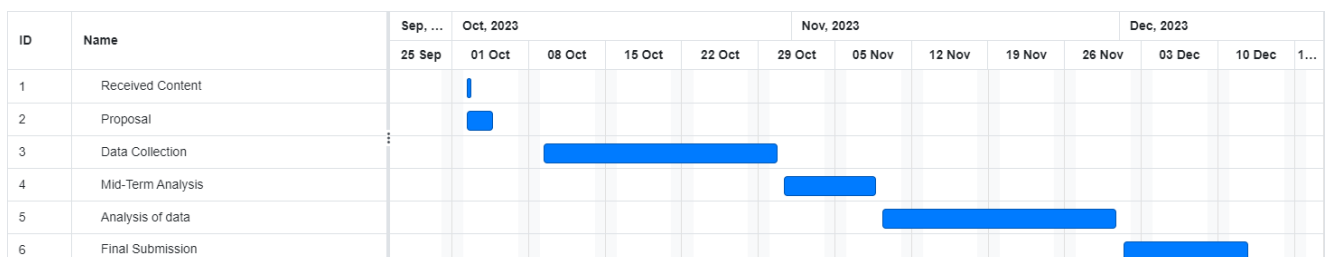
Expected Timeline:

I have successfully collected 30 days worth of data which will be first cleaned, analyzed and according to which more data will be collected if needed.

Work-Break Down Structure:

Task	Start Date	End Date	Days To Complete
Received Consent	01-10-2023	02-10-2023	1
Proposal	02-10-2023	05-10-2023	3
Data Collection	09-10-2023	30-10-2023	16
Mid-Term Analysis	31-10-2023	08-11-2023	7
Analysis Of Data	09-11-2023	30-11-2023	16
Final Submission	01-12-2023	12-12-2023	8

Ghant Chart:



Expected Outcome:

- Assist the owner in organizing the business more effectively by creating pivot tables and graphs.
- Suggesting the best possible solution for inventory management.
- Suggesting the business plan to increase profit margin and solve the above mentioned problems