

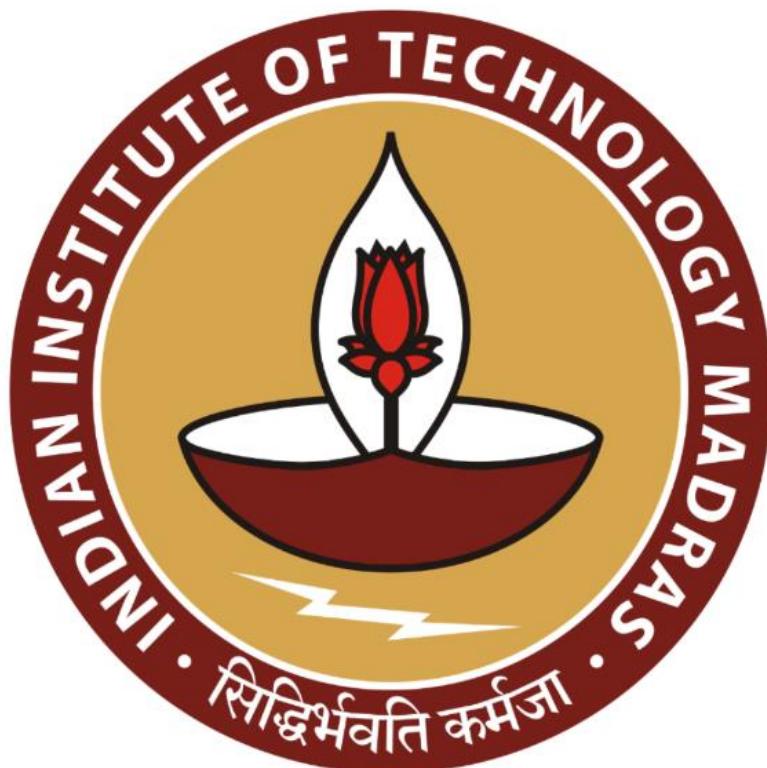
Business Transformation of a General Store: From Manual to Data-Backed Operations

A Mid-Term report for BDM Capstone Project

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1. Executive summary:

Verma General Store, located in Shahjadpur, Akbarpur (Ambedkar Nagar), is a local retail outlet serving daily household needs. Despite a steady customer base, the store faces operational challenges, including problem in demand prediction, inconsistent revenue, and lack of a supplier management system—resulting in frequent stockouts and inflated procurement costs.

Data was manually collected from the store's physical "Khata Book," covering transactions from 15 October to 16 November 2024. After cleaning and organizing in Excel, two key datasets were created: **Raw Sales Data** and **Supplier Evaluation Data**. Core fields include *Date, Product Name, Category, Cost Price, and Selling Price*, while supplier data captured metrics like *Delivery Delay, Damage Percentage, and Credit Terms*. Descriptive statistics (mean, median, mode) and trend charts (Fig.1–4) revealed irregular revenue patterns and confirmed **Home Items** as the best-performing category.

The data was further refined by categorizing products and converting qualitative supplier data into quantitative scores using Excel functions IF(), IFS(), enabling visual comparison (Fig.2). Revenue gaps due to shop closures were filled using average-based estimation. Insights showed that stockouts during Oct 18–20 and Nov 6–8 were the main cause of revenue dips. A wholesaler performance scorecard (Fig.7) helped evaluate suppliers across delivery speed, damage rates, and pricing. **Aradhya Traders** emerged as the most reliable option. A long-term partnership is recommended to ensure consistent stock availability and drive sustained revenue growth.

2. Proof Of Originality:

Shop name - "**Verma General Store**",

Shop Address - Near Hindustan furniture, Pahitipur Road, Shahjadpur market, Akbarpur, Ambedkar Nagar (U.P)

Owner name - "Ritik"

Video interaction with the owner: [Video](#)

Declaration letter: [Letter](#)



Fig. a | Photo of the shop



Fig.b | Photo of the owner

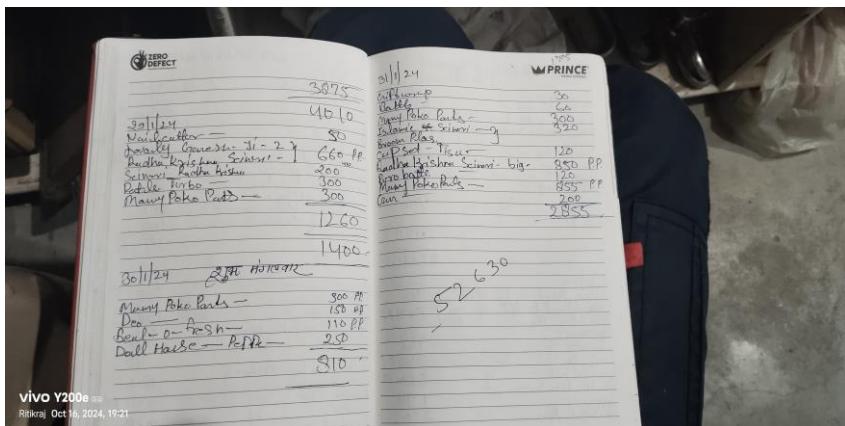
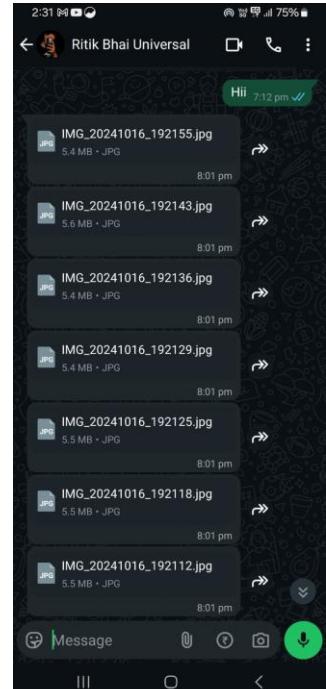


Fig: Snapshot of various daily data recording (khata book)



3. Meta Data

The data we have collected Manually from the owner using a register having daily sold items entry (called bill book or khata book). This data was unorganized and contained some

outliers. After cleaning, it was structured into Excel sheets – Raw Sales Data and Suppliers Evaluation data. Key columns were extracted for better analysis. The dataset covers data from 15 October 2024 to 16 November 2024.

Link to the Following dataset: [Dataset](#)

Metadata for Raw Sales data:

S.No	Columns	Description	Datatypes
1.	Date	Date of the sales	Date
2.	Product name	Name of Each Product sold	String or Text
3.	Category	Category of the product	String or Text
4.	Cost price (CP)	Price at which product got buy	Integer
5.	Selling price (SP)	Price at which product got sold	Integer

Meta data for the table 2: Suppliers Evaluation data

Columns	Description	Datatypes
Whole seller name	Name of the supplier or wholesaler being evaluated.	String
Avg. Delivery delay	Avg. time it takes for the supplier to deliver products after an order is placed	Integer
Damage percentage	Estimated percentage of goods received damaged or defective.	float
Category of product	The type of Product Categories offers	string
MOQ	Minimum order amount that a wholesaler requires per order.	integer
Delivery terms	Indicates whether delivery is free or comes with cost.	String or integer
Credit terms	The payment terms offered by the supplier	integer
Return policy	Whether the supplier accept returns for damaged or unsatisfactory goods.	string

4. Descriptive Statistics

For Descriptive statistics, we find the measure of central tendencies as Mean, Median and Mode. These statistics were calculated using Excel formulas like MAX, MIN, SUM & AVG. These formulas were applied to each Category and generated descriptive statistics for the

entire dataset. These statistics help us to understand the distribution of sales for each category and identify patterns and trends.

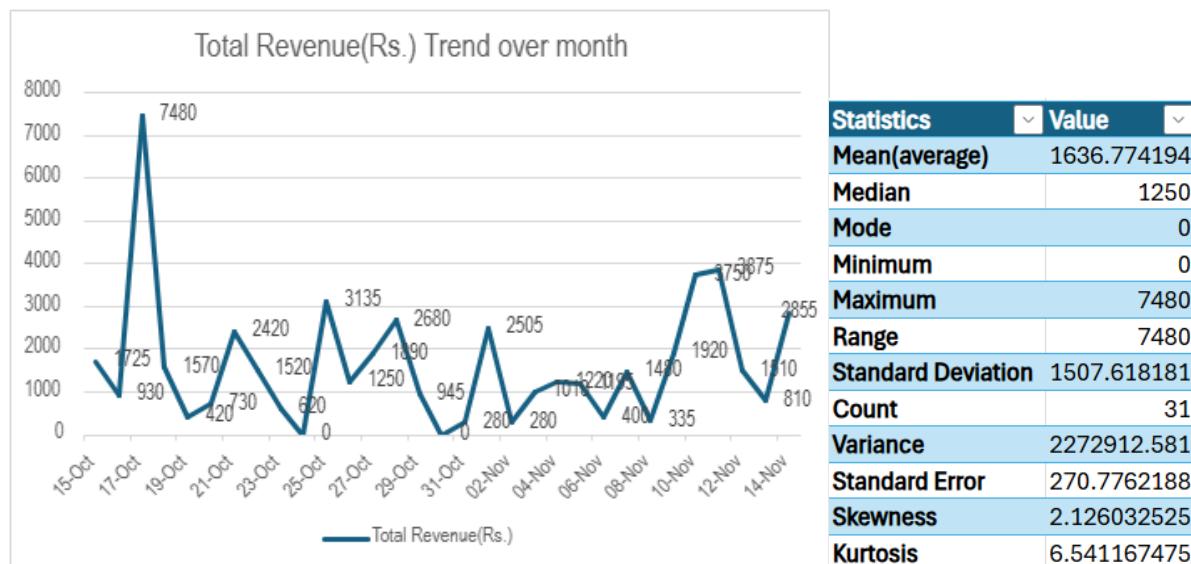


Fig .1 shows the revenue trend over a month and its respective descriptive statistics.

Figure 1 shows the daily revenue trends and key statistics, directly linked to Problem Statement 2 about lack in revenue generation. The graph helps us understand how much revenue is made each day and spot any ups and downs. This gives us a clearer picture of fluctuation in revenue and supports our effort to improve revenue.

After speaking with the owner, we discovered that the recent drop in revenue is mainly due to frequent stockouts. To tackle this, we need to create a Supplier Scorecard focused on three key factors: delivery speed, product damage rate, and cost efficiency.



Fig.2 shows the Whole seller Performance Comparison

As shown in Figure 2, **Aradhya Traders** stands out as the most efficient supplier overall, offering a good balance across all these areas. After that, Ganpati Traders is most reliable for the sustainable growth.

To tackle of the sudden stockout we need to analyse the behaviour or pattern of customer based on which we can predict the demand for future.

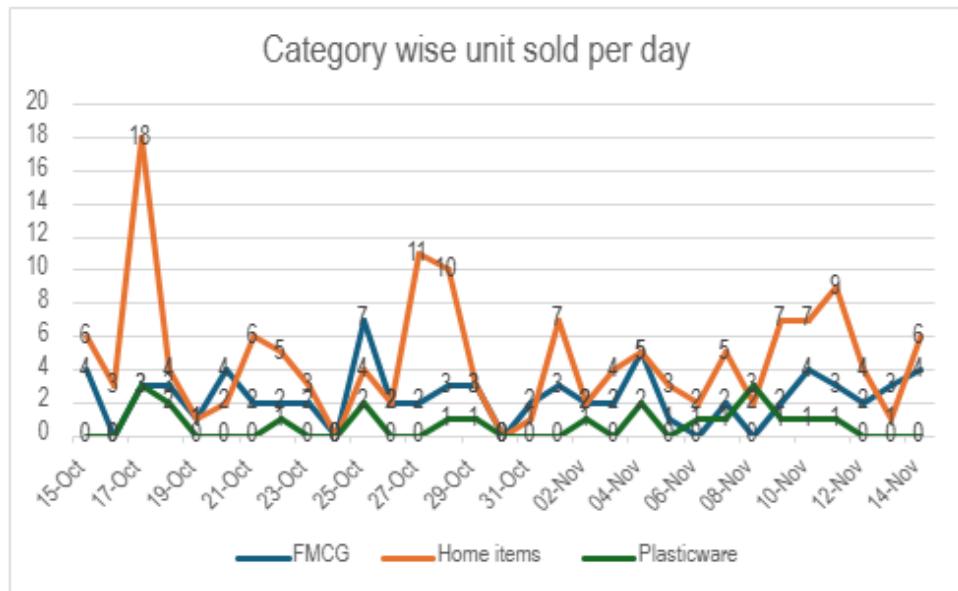


Fig.3 shows the trend of category wise sold item per day over a month

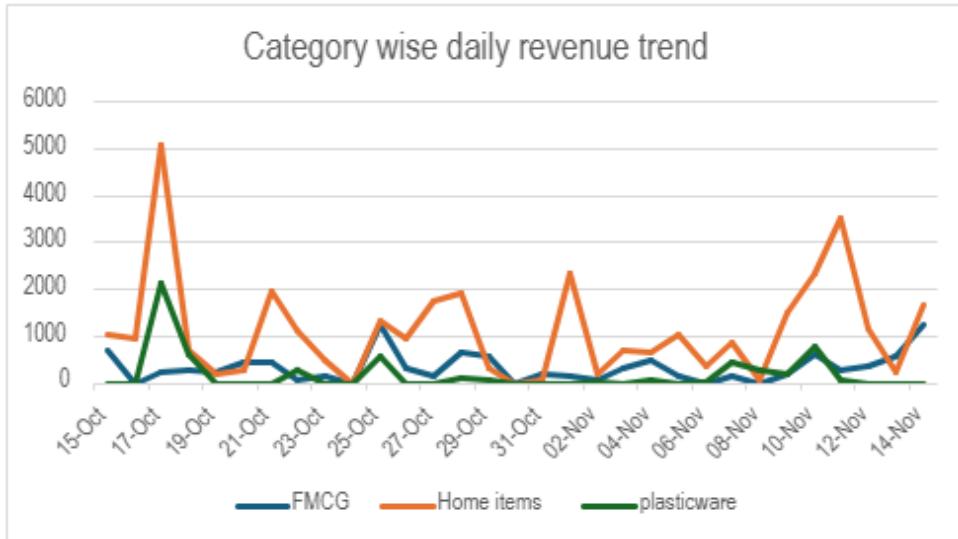


Fig.4 Tracks revenue trends across all product categories for a month

In fig.3 and fig. 4, highlights “**Home items**” is the Top performing category in both revenue and units sold. This insight can be leveraged to drive targeted strategies for business growth.

5. Detailed explanation of Analysis/Method

To begin with, I digitized the information collected from the shop owner using Microsoft Excel. I organized it into two separate sheets: one for Raw Data and another for Supplier Data. The data cleaning process involved correcting incorrectly entered information and standardizing duplicate product names — for example, merging variations like 'Clock' and 'Wall Clock' into a single, consistent entry. After completing the cleaning, the data was much more accurate and ready for meaningful analysis.

In available raw data, we have product name, cost price and selling price, but to analyse the customer buying behaviour and pattern, we need to categorize the sold items in broader category and This categorization will allow us to observe trends and understand which types of products customers are most interested in. You can observe it in fig.3

After understanding the customer buying behaviour, I moved on to observe revenue, I used the raw data column, Date & Selling Price, created a new sheet “Revenue”. I grouped the selling price based on date (Using SUM function in excel) and calculated the revenue for those dates, which gave me revenue trend over the months, (Using line graph) observe it in Fig 1.

We have the supplier's raw data, which have suppliers name, avg. delay time, damage %, category, MOQ, delivery term, credit terms. But each column has qualitative data, which makes it impossible to perform some mathematical operation. So, we need to convert those columns into quantitative data (using IF () or IFS () function of excel on column) and make Bar Chart on it. You can observe it in fig. 2. The Business is closed on 24 and 30 October due to some owner's personal family problem, so for that day we have missing value to fill those values, we apply the AVERAGE function to calculate the revenue based on the adjacent columns containing revenue data & we get the Final Revenue column.

In fig.2 the bar chart provides a clear comparison of each seller's overall performance, helping us identify which suppliers are the most reliable and suitable for long-term partnerships who didn't charge inflated price, provide timed delivery which reduce the stockout problem resulting in improving the revenue problem.

6. Results and finding:

The insight drawn from the Analysis is explained below:

To future forecasting or understanding customer behaviour, product demand, and the most preferred categories, we analysed the total units sold for each category. By summing up the sales volume category-wise and visualizing it in a pie chart, we can clearly see the sales share of each category — helping identify which product segments are driving higher demand, revenue, and profitability.

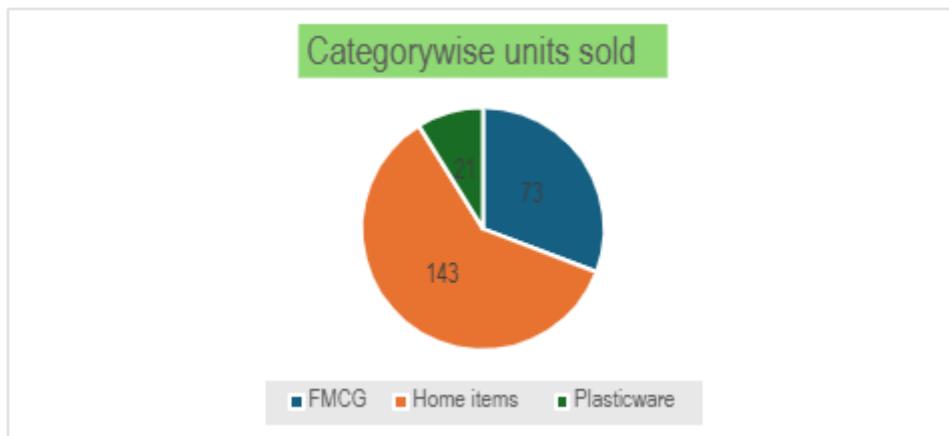


Fig. 5 | Category-wise units sold over a month

From the chart, it's clear that "**Home Items**" is the most in-demand category with the total sales of 143 unit, followed by **FMCG** (Fast Moving Consumer Goods) with the sales of 73 unit. Based on this insight, we recommend that the shop owner prioritize stocking and promoting more products under the Home Items category to align with customer preferences and maximize sales potential.

Again, to maximize revenue we need to see which category is performing well in terms of revenue.

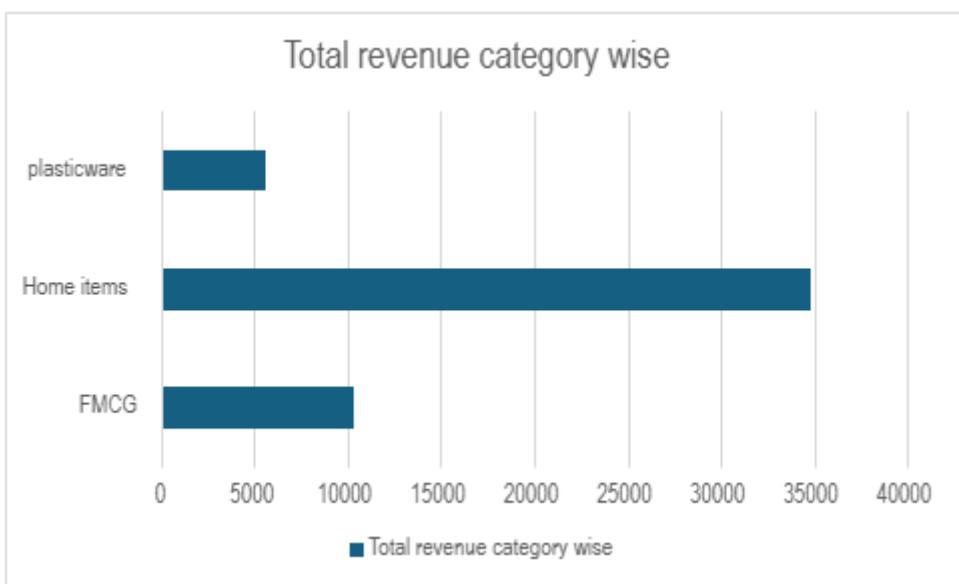


Fig. 6| Category-wise total revenue generated over a month

Figures 5 and 6 highlight that **Home Items** is the best-performing category in terms of both demand and revenue. To capitalize on this, the owner should prioritize this category by ensuring consistent availability and maintaining sufficient stock levels. During discussions with the owner, it was revealed that a recent drop in revenue was caused by stockouts (18-20 oct and 6-8 Nov)— primarily due to delays in supplier deliveries.

The average revenue generated over a month is 1749 Rs. And there is a sudden spike on 17 October is due to festival generated 7480 Rs as the footfall is increased by 200%. The average footfall of the shop currently is around 8.

The sudden drop in Home Items revenue from Oct 18–20 was due to a stockout following a major festival - Dussehra sale spike. Inventory replenishment was delayed due to logistic issues. The avg. Delay in shipping is 2 days sometimes it exceeds 2 days.

Sales dropped not due to poor performance, but because the most demanded items went out of stock temporarily. To address the stockout issue, we developed a wholesaler performance comparison chart that considers key metrics such as delivery timeliness, damage rates, minimum order requirements, and cost terms.



Fig. 7 | represent whole seller comparison chart

This comparison helps identify the most reliable and efficient supplier — one that best supports the owner's needs and contributes to the long-term growth of the business

Aradhya Traders stands out as a preferred choice for wholesalers, offering consistently high-quality products with a proven track record of timely deliveries and dependable service. (Observe in fig.7)

I recommend establishing a long-term partnership with “Aradhya Traders” to ensure consistent stock availability, minimize the risk of stockouts, and support sustained revenue growth through reliable supply and quality products.

Thank you