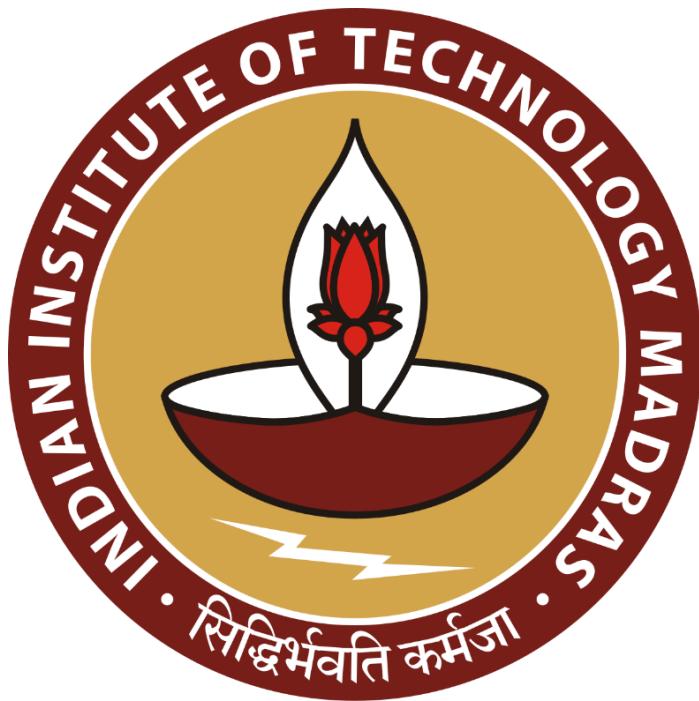


Weaving Business Insights: An Analytical Approach to a Retail Saree Store

A Mid-Term report for the BDM capstone Project

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1 Executive Summary

'Rani's Collection' is a small saree showroom located in Chhatrapati Sambhaji Nagar, offering a diverse and premium selection of sarees and ghagras known for their distinctive and designer patterns. The store is managed by a dedicated couple, focusing primarily on the B2C market and catering to customers' seasonal, occasional, and regular needs. Despite its high-quality offerings and customer-centric approach, the business faces significant operational challenges that hinder its overall efficiency and profitability.

The primary issue lies in inventory management, with the store struggling to maintain oversight of supplies. Excess inventory and dead stock have resulted in significant capital being tied up, limiting the business's ability to reinvest in more profitable ventures. Additionally, the lack of a systematic pricing strategy poses challenges, as prices that are too high deter potential customers, while prices set too low reduce profit margins, affecting overall sustainability.

To address these challenges, the project aims to develop and implement a data-driven inventory management system to accurately track stock levels and identify cost-saving opportunities. By utilizing tools such as Microsoft Excel, Python, and machine learning, the proposed approach will streamline data handling processes and enhance decision-making capabilities. This solution seeks to ensure inventory accuracy, minimize excess stock, and implement optimized pricing strategies that balance customer satisfaction with improved profitability.

2 Proof of Originality

- Business Name: Rani's Collection
- Address: Block 9, RH Colony, near Jalna Road, Chhatrapati Sambhaji Nagar, Maharashtra.
- Owner's Name: Mr. Sunil Darak and Mrs. Deepali Darak.
- Letter from the Organisation and Video of Interaction : [Links](#)
- Images of Organisation: I have attached them in Appendix A below at the EOD.

3 Metadata

- Data Format: Comma Separated Values(csv) and Excel Sheets(xlsx).
- Range: September 2, 2024 to November 29, 2024.
- Units of Measurements for figures involving Money: Indian Rupees(₹)
- Dates of Sales : The sales were recorded using the bill copies and the billing software that the store uses, typically updating it every 3-4 days every month.

Information about Saree data:

Key	Description
Category	Sarees are divided into categories based on certain type
Item Code	Each Category is assigned a code
Quantity	Quantity of each saree sold
Billing Amount	Amount at the time of Billing
Discount Offered	Discount offered on that bill
Net Sales	Final amount acquired by the store on the purchase
Net Cost	Cost incurred by the store on the purchase of the product

Link: [+ IIT MADRAS \(1\)](#)

Additional Features Collected:

Key	Description
Bill no	Every bill is assigned a unique bill number
Customer Name	Names of the customers

Explanation : The seller has divided his products based on categories, according to the ease of their understanding. He usually updates the software in 2-3 working days, so the

sales dates may include the sale of 2-3 previous dates combined in one.

4 Descriptive Statistics:

I have meticulously collected all the sales data from 2nd September to 29th November. After processing and cleaning the data, I have provided a concise summary using descriptive statistics. This summary highlights the key statistics relevant to the sales performance of the store each month, offering a clear overview of how the store performed.

Total Data consists of 975 entries. The maximum sale was Rs.18232 and minimum was Rs .374

Month	Total Revenue	Expenses	Profits	Mean	Standard Deviation
September	802644.09	539744.61	262899.5	535096.06	269902.33
October	655108.09	421360.96	233747.1	436738.73	211100.97
November	413767.97	263373.54	150394.4	275845.32	132128.97
	1871520.15	1224479.11	647041.04		

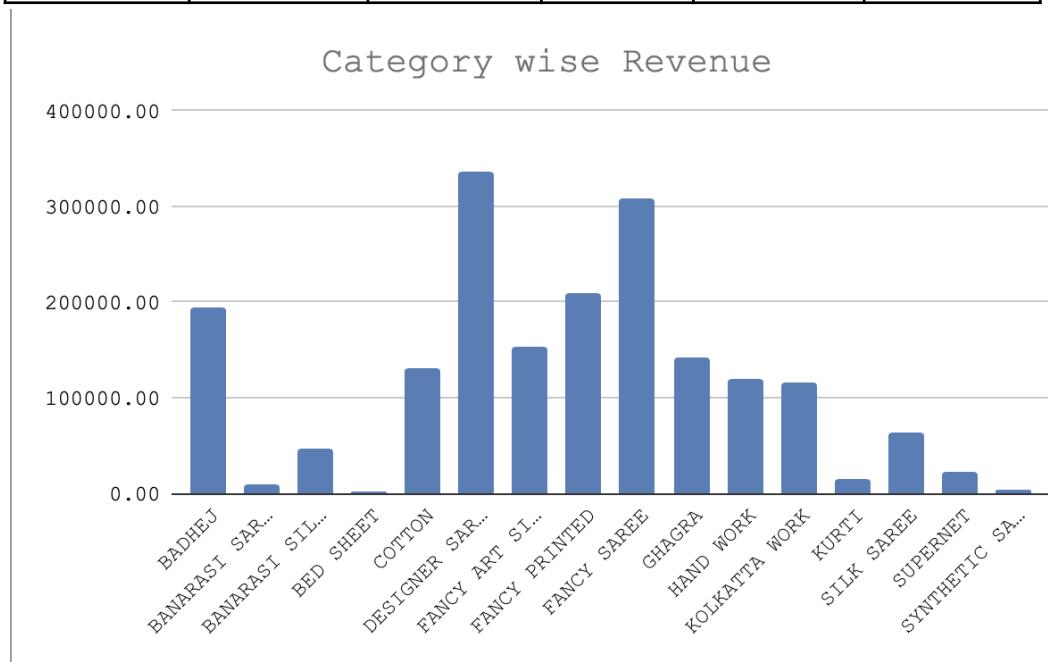


Fig 1: Category wise Revenue in INR (₹)

TOTAL REVENUE

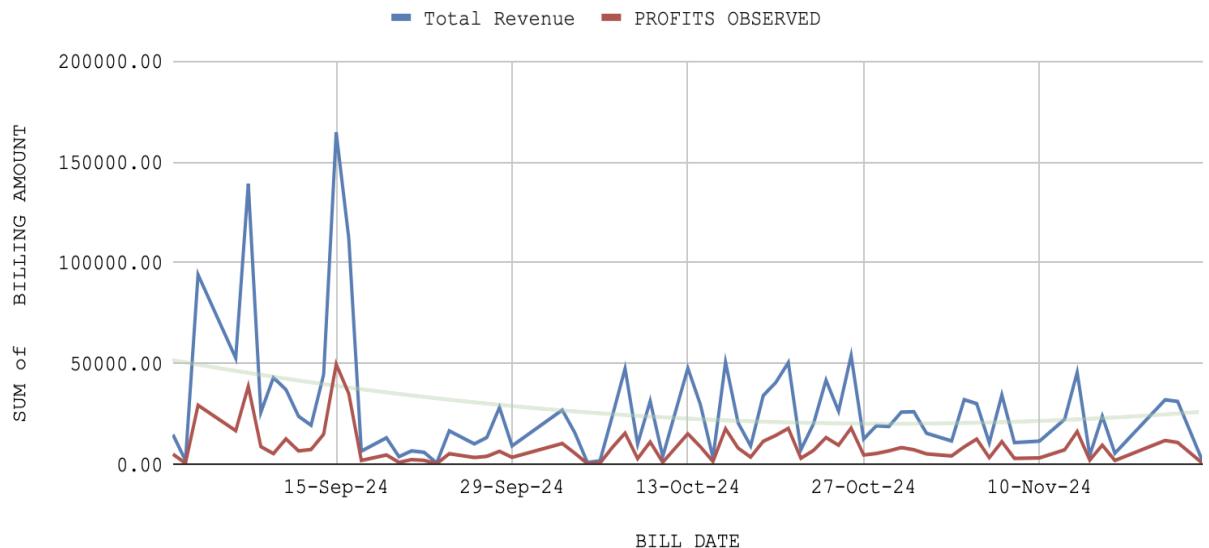


Fig2: Total Revenue generated and Profits observed parallelly

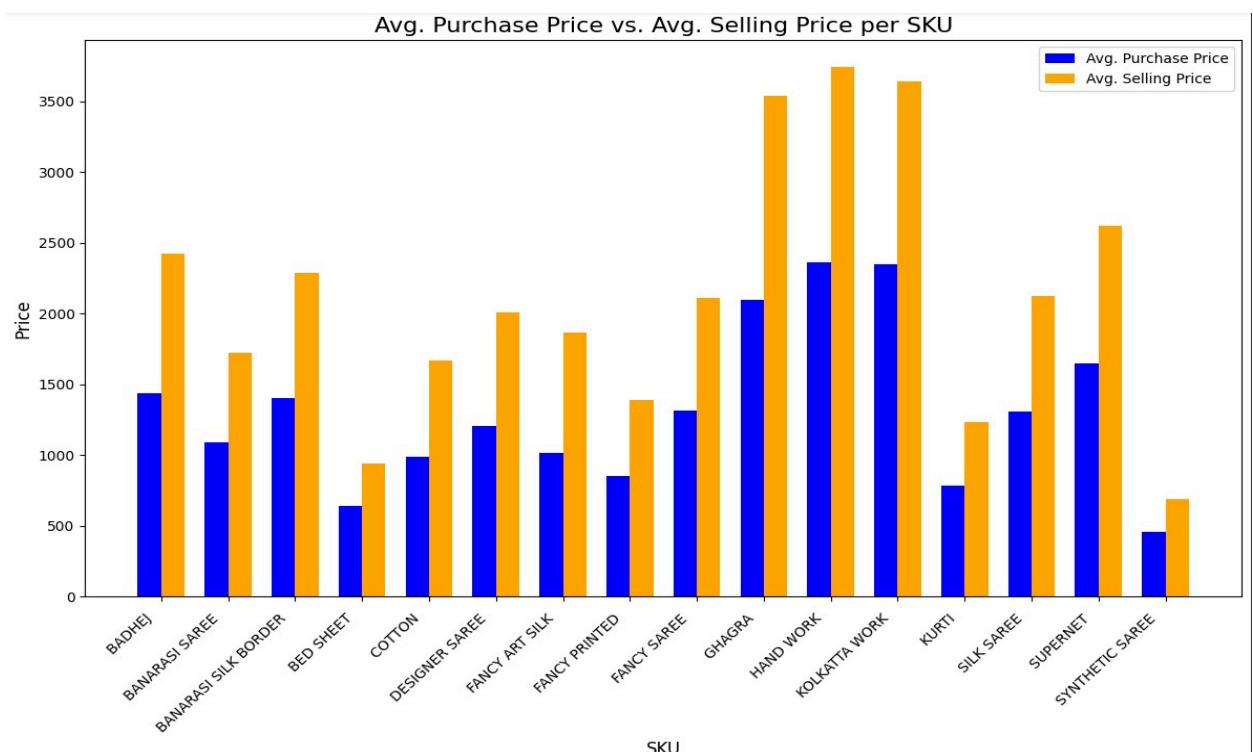


Fig 3 : Analysis of Average Purchase and Selling Prices Across SKUs

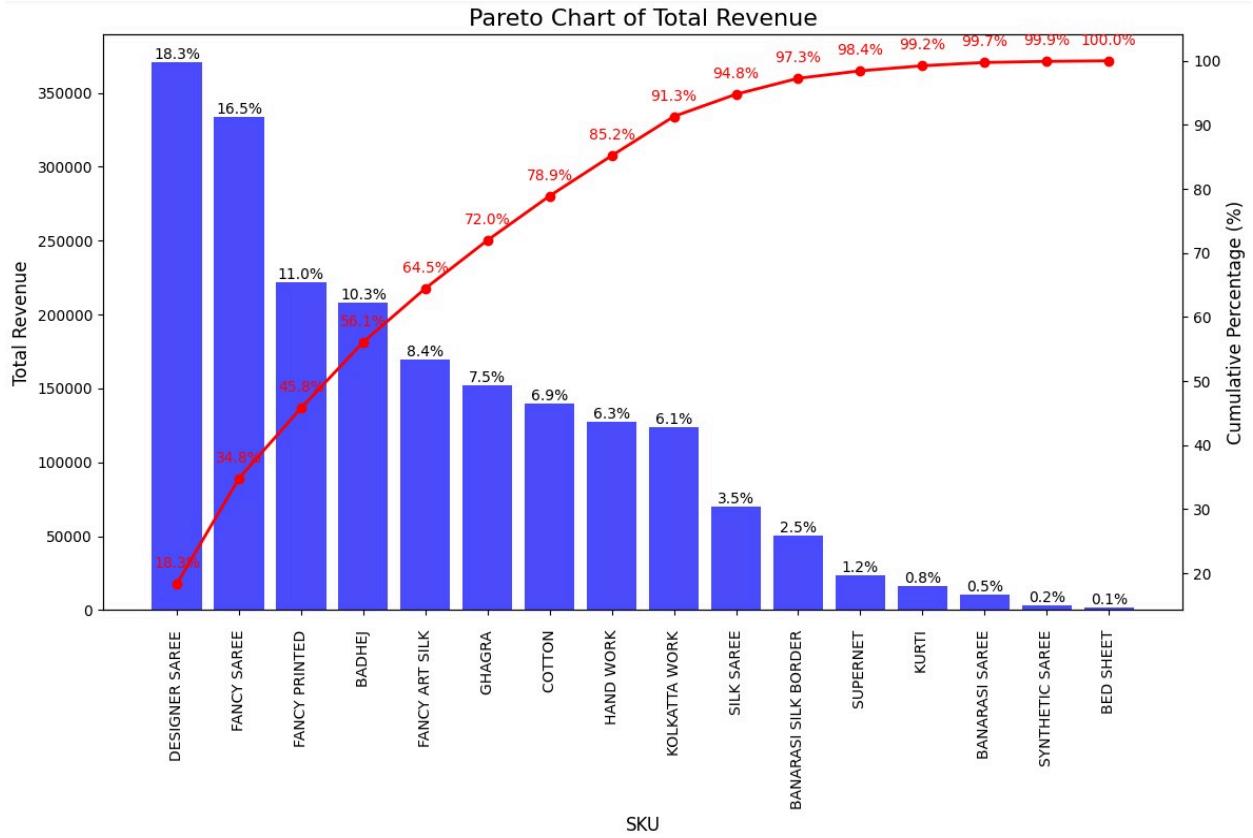


Fig 4 : Pareto Chart of Total Revenue Across SKUs

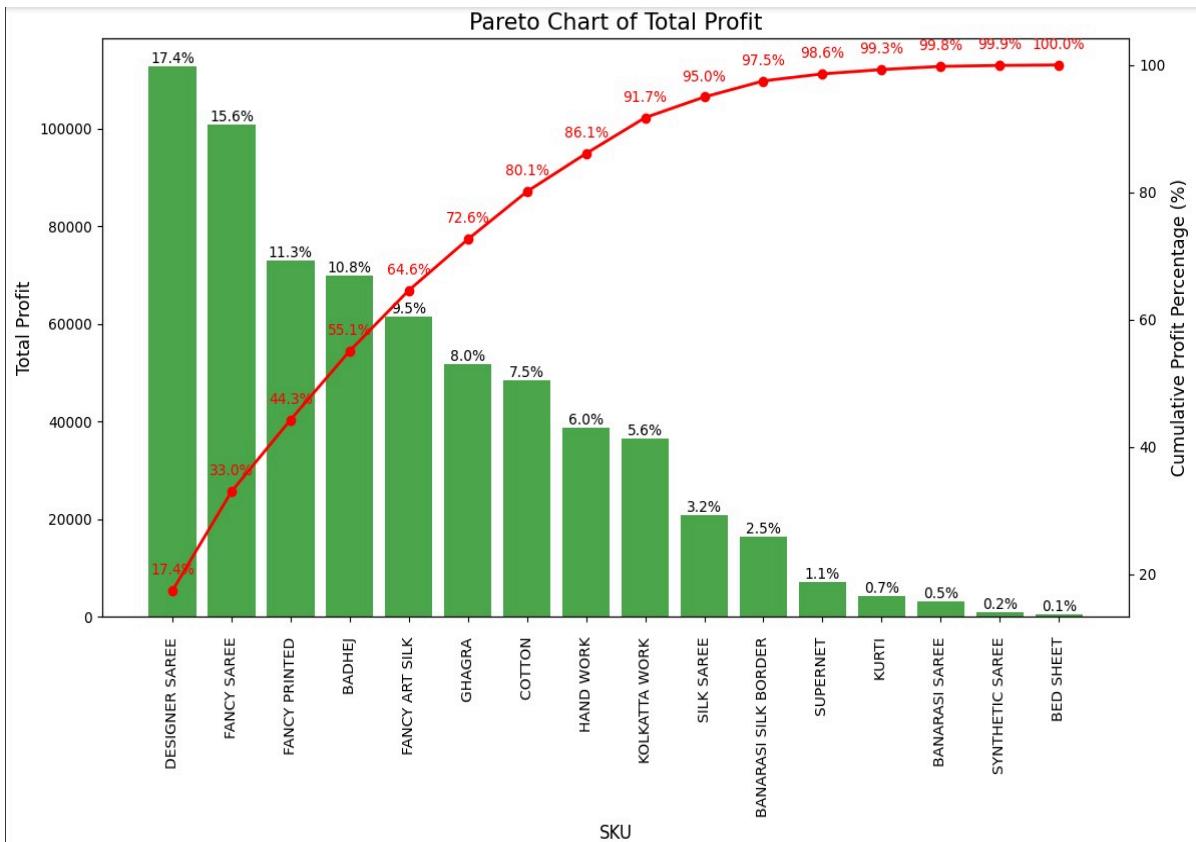


Fig 5 : Pareto Chart of Total Profit Across SKUs

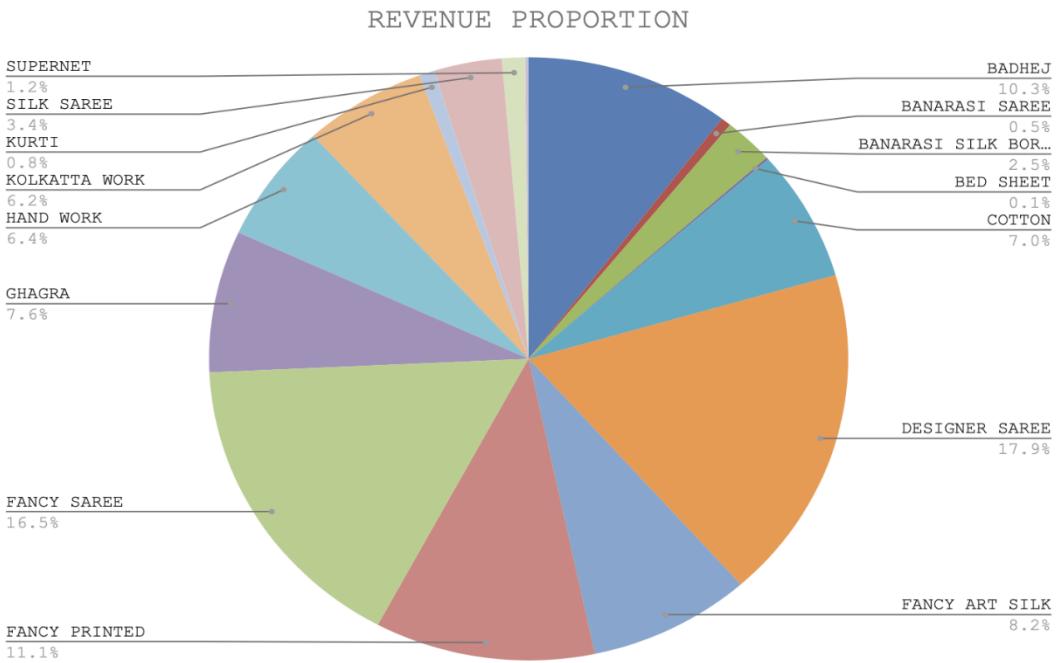


Fig 6: Revenue Distribution Across Product Categories

5 Analysis processes and Methods

The process of data analysis involves several key stages: defining the problem, collecting data, organizing and cleaning it, transforming it, applying appropriate analysis techniques, and finally drawing conclusions. The first phase, data acquisition, took nearly 3 months of continuous collection and addition. It took three months to gather the necessary data, during which time I interacted with the business owner and took regular updates. The sales data provided by the owner, while mostly clean, required minor cleaning and further feature analysis. The analysis process for this project integrates both quantitative and qualitative methods, each selected to address different aspects of the business's challenges.

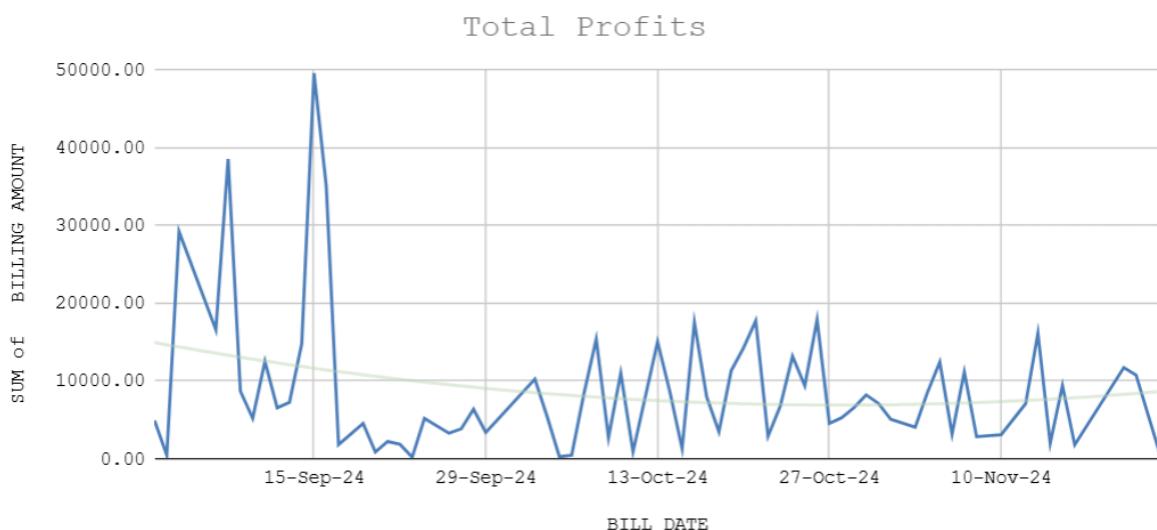
- **Spreadsheets** were heavily utilized throughout the analysis for various calculations that were essential to the process. Tasks like calculating the **Total Revenue** across the SKUs or determining the **Total Sales and Profits** were efficiently managed using spreadsheet functions. The spreadsheet provided an accessible and intuitive platform for performing complex calculations and summarizing large datasets. Functions like **SUM**, **AVERAGE**, and others helped simplify the process of aggregating and analyzing data. Pivot Tables, Charts and custom formulas were incorporated for analysis.

- **Python**, along with tools like **Pandas**, **Matplotlib** was employed for conducting in-depth statistical analysis. Using Pandas, I calculated central tendency measures and variability, which provided a clearer picture of how financial data was distributed. This also allowed us to identify any irregularities or unusual patterns, giving us deeper insights into the business's financial situation.
- **Conversations with the business owner** provided essential qualitative data that was not reflected in the numbers alone. The owner's insights into decision-making processes, such as inventory stocking and pricing strategies, were vital for crafting actionable recommendations that align with the business's real-world conditions given the unpredictability of the business.
- Used **ABC analysis** to categorize inventory items into high, medium, and low-value groups, helping prioritize resource allocation. **Pareto Analysis** was applied to identify the key contributors to inventory and sales, following the 80/20 rule. This allowed us to focus on the most impactful items. Both methods enhanced inventory management and optimized business decisions.

6 Results and Findings

A total of 1374 products were sold during the span of 3 months, averaging approximately 15 products were sold every day.

One key observation is how profit seems to peak during the seasonal and festive season whereas there is a decline in the sales off-season.

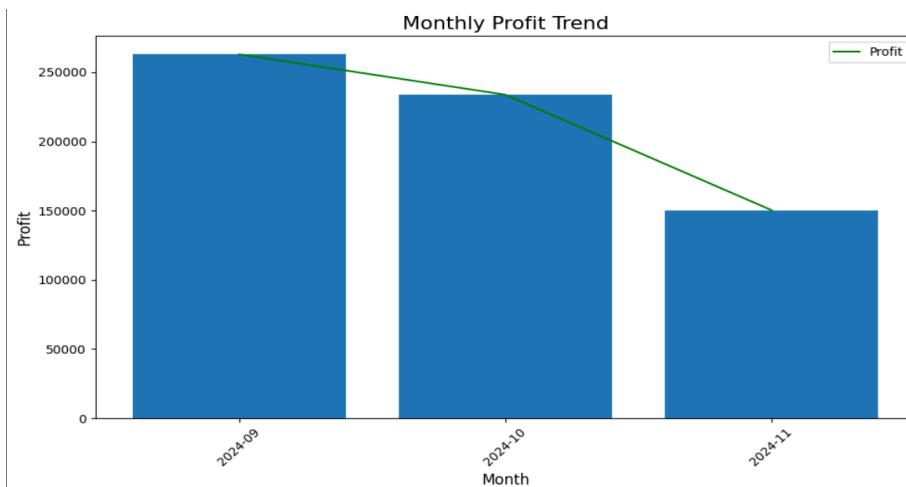


Owner had conducted a special festive sale at the time of 9-16 September where we can see a spike in sales, whereas we can see consistent profit trendlines in the following months.

The mean profit came out 670.51 to be whereas standard deviation was 489.33.

Key Findings from the Fig 1 and Fig 6:

1. Designer Sarees are the highest revenue generating product (Rs. 335523.32), followed by Fancy Sarees (308192.42) and Fancy Printed (2208572.24) and these 3 items collectively contributed to approximately 44 percent of the total sales.
2. Fancy Art Silk at 43% and Badhej at 36% had the highest profit margins among all the SKUs.
3. Applying Pareto Principle reveals Designer Saree, Fancy Saree, Fancy Printed Saree, Fancy Art Silk, Ghagra, Handwork, Kolkata Hand Work Saree contributed to around 80% of the profits.
4. The products with the lowest sales included bedsheets, kurtis, and supernets, with the latter being a new category the store has recently introduced and currently exploring customer response.
5. There are a lesser number of products which were considered as ‘Dead Stock’ which were sold at a loss, just to clear them up.
- Due to seasonal requirements of the customers, the profits peaked during the months of September and October due to the occasions of Weddings and Diwali, whereas there was a decline in the profits during the month of November.



- Product price optimization can be achieved by analyzing competitor prices in the market and aligning them with consumer demand. Additionally, conducting practical, real-world analysis of customer behavior and preferences can provide valuable insights to inform an effective pricing

strategy. This approach ensures that pricing decisions are both competitive and responsive to customer needs.

APPENDIX A :



Proof of Originality :

