

Strengthening Inventory Resilience: By enhancing Supplier Dynamics and Sales Volatility in Pharmacy Retail

A Final Report for the BDM capstone Project

Submitted by

Name:Sivakumar P

Roll number:21f3001256



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 “**Strengthening Inventory Resilience: Enhancing Supplier Dynamics and Sales Volatility in Pharmacy Retail**”. I extend my appreciation to Shree Chendur Medicals, 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: Sivakumar P

Name: Sivakumar P

Date: 04/14/2025

1 Executive Summary

The analysis of inventory, sales, and procurement data for Shree Chendur Medical Center, Srirangam, Trichy, covering April 2023 to May 2024, reveals key insights into stock management, sales performance, and purchasing efficiency. By examining three datasets—Consolidated Closing Stock, Daywise Sales, and Purchase Bills—this study highlights sales trends, profit fluctuations, and stock movement over the financial year. The data was extracted from PDF sources using Python automation, cleaned, and structured for analysis in Tableau, enabling a comprehensive review of financial and operational performance.

Key findings indicate that sales peaked between November and January, with December showing the highest profit margins due to a favorable mix of high-margin products and lower procurement costs. Conversely, the first quarter of the financial year experienced lower sales and profit margins, largely influenced by high purchase costs and low-margin products. The weekday sales analysis further revealed that Mondays had the highest sales volume, while Saturdays recorded the lowest, highlighting potential optimization opportunities in staffing and inventory management.

The profit distribution analysis uncovered that a small number of high-performing companies, such as Biomaxx Life Sciences and Glaxo SmithKline, contributed disproportionately to overall profits, reinforcing the Pareto principle. The quadrant analysis of profit vs. inventory turnover further categorized products into strategic segments, guiding procurement strategies for maximizing profitability. These insights provide actionable recommendations for optimizing stock procurement, enhancing sales strategies, and improving overall financial efficiency in the medical center's operations.

This report analyzes inventory, sales, and procurement data from Shree Chendur Medicals (April 2023 - May 2024) to identify strategies for strengthening inventory resilience against supplier dynamics and sales volatility. Utilizing Python for data extraction from monthly PDF reports and Tableau for visualization, the analysis examined datasets including Consolidated Closing Stock, Daywise Sales, and Purchase Bills. Key findings reveal significant sales peaks between November and January, with December showing the highest profit margins, likely due to product mix and lower procurement costs that month. Conversely, early financial year quarters showed pressure from higher purchase costs. Analysis of weekly trends highlighted Monday as the highest average sales day, but box plots revealed substantial day-to-day sales volatility and outliers across all days, indicating that average-based stocking is inadequate and contributes to stockouts. Profitability is heavily concentrated, with Biomaxx Life Sciences and Glaxo SmithKline driving a disproportionate share (Pareto principle). Furthermore, a significant supplier concentration risk exists, with over 40% of purchase volume sourced from the top two suppliers. Quadrant analysis mapping profit against inventory turnover categorized products, revealing distinct performance groups requiring tailored strategies. These insights provide a foundation for actionable recommendations focused on optimizing inventory, diversifying suppliers, and enhancing overall financial performance.

2 Detailed Explanation of Analysis Process/Method

2.1 Data Cleaning:

The initial data for this project originated from the medical shop's old billing software, which provided limited reporting options, primarily generating monthly summaries as PDF files. These twelve individual PDF files—one for each month of the year—represented the raw data source. This unstructured format required transformation into a machine-readable structure suitable for analysis. To accomplish this, I utilized the PDF Plumber and Regular Expressions (RE) libraries in Python. PDF Plumber was employed to extract text and tabular content directly from the PDFs, while RE was crucial for identifying and isolating specific data points through pattern matching, ensuring accurate and consistent data capture across the differently structured reports from the software.

To handle the multiple monthly PDF files efficiently, I implemented an automated workflow using Python's OS library, which allowed for programmatic iteration over all the report files stored in a directory. For each PDF processed, the extracted data was organized into a Pandas DataFrame. A "month" column was programmatically added to each DataFrame, using information derived from the PDF filenames or internal metadata, to retain essential temporal context. Finally, these individual monthly DataFrames were consolidated into a single, comprehensive dataset using Pandas' concatenation features. This unified dataset was then exported as a CSV file, creating a structured and analysis-ready foundation from the initial, constrained PDF reports. This efficient, scalable process was key to overcoming the limitations of the source system's reporting capabilities.

2.2 Analysis Method:

After cleaning the data and organizing the CSV file, I implemented the following Analysis:

2.2.1 Sales vs. Purchase (Stacked Bar Chart)

This Stacked Bar Chart is crafted by importing data from Excel into Tableau. Each bar represents a specific month along the time axis. Within each bar, the red segment signifies the 'Purchase Amount' for that month, while the total height of the bar represents the corresponding 'Sales Amount' (as indicated by the green legend marker). The green segment stacked atop the red visually represents the difference between sales and purchases (gross margin) for that period. Horizontal lines indicate the average Sales and Purchase amounts across the months shown. This visualization reveals that total sales in most months surpass the average sales line, suggesting generally robust sales performance. The justification for this stacked approach lies in its ability to offer an immediate, within-month visual comparison of purchase costs relative to total sales revenue, making the gross margin per month evident and actionable for decision-makers.

2.2.2 Weekly Profit Data by Day (Box Plots)

Box Plots are employed to analyze weekly profit data by day, with daily sales data aggregated in Excel and visualized in Tableau as box plots for each weekday. The insights show a stable median profit across the week, with greater variability on days like Monday and Saturday, pointing to sporadic sales surges. This method is justified by the box plot's ability to provide a clear statistical summary—median, interquartile range (IQR), and outliers—facilitating the detection of anomalies and day-specific performance differences.

2.2.3 Average Weekly Sales (Bar Plot)

This bar chart is created using Tableau, illustrates the average sales performance across different days of the week. The vertical axis, labeled "Average Sales Per Week of Day," quantifies sales volume in thousands (K), ranging from 0K to over 9K. The horizontal axis displays specific days: Monday, Tuesday, Friday, Wednesday, Thursday, and Saturday – notably not in standard chronological order and omitting Sunday.

Each green bar, generated within Tableau, represents one of these days, its height corresponding directly to the calculated average sales figure for that day. The visualization distinctly highlights Monday as the day with the highest average sales, peaking significantly above the 9K mark. The subsequent days presented show lower average sales figures: Tuesday and Friday demonstrate similar performance around 7.7K, followed closely by Wednesday (approx. 7.5K) and Thursday (approx. 7.4K). Saturday shows the lowest average sales among the displayed days, at roughly 7.1K. This Tableau-built chart offers a clear visual comparison, pinpointing Monday as the strongest day for average sales based on the available data.

2.2.4 Top Supplier (Bar Plot)

This vertical bar chart, titled "Supplier Name" and created using Tableau, visualizes the purchase amounts associated with various suppliers. The vertical axis, labeled "Amount," quantifies these purchase values in thousands (K), ranging from 0K up to 220K. The horizontal axis lists the different suppliers, identified by abbreviated names.

2.2.5 Top 20% Products Contributing to Profit (Pareto Chart)

The Pareto Chart is constructed by filtering profit data from Excel in Tableau to spotlight the top 20% of products contributing to profit. This analysis demonstrates that a small group of products, such as those from Biomaxx Life Sciences and Glaxo SmithKline, drives the majority of the profit, highlighting both dependency risks and opportunities for a focused strategy. The Pareto chart's value lies in its efficiency at prioritizing high-impact areas, guiding strategic decisions by pinpointing where most profit originates.

2.2.6 Company wise product distribution (Pie chart)

This 3D pie chart was generated in Microsoft Excel using data imported from a dayswise_sales.csv file. It visualizes the proportional distribution of sales amounts across different companies. To create this chart, the 'company name' column from the CSV file was used to define the categories (slices), and the 'sales amount' column was aggregated (likely summed) to determine the size of each slice, representing that company's percentage share of the total sales.

2.2.7 Profit Distribution by Company (Tree Map)

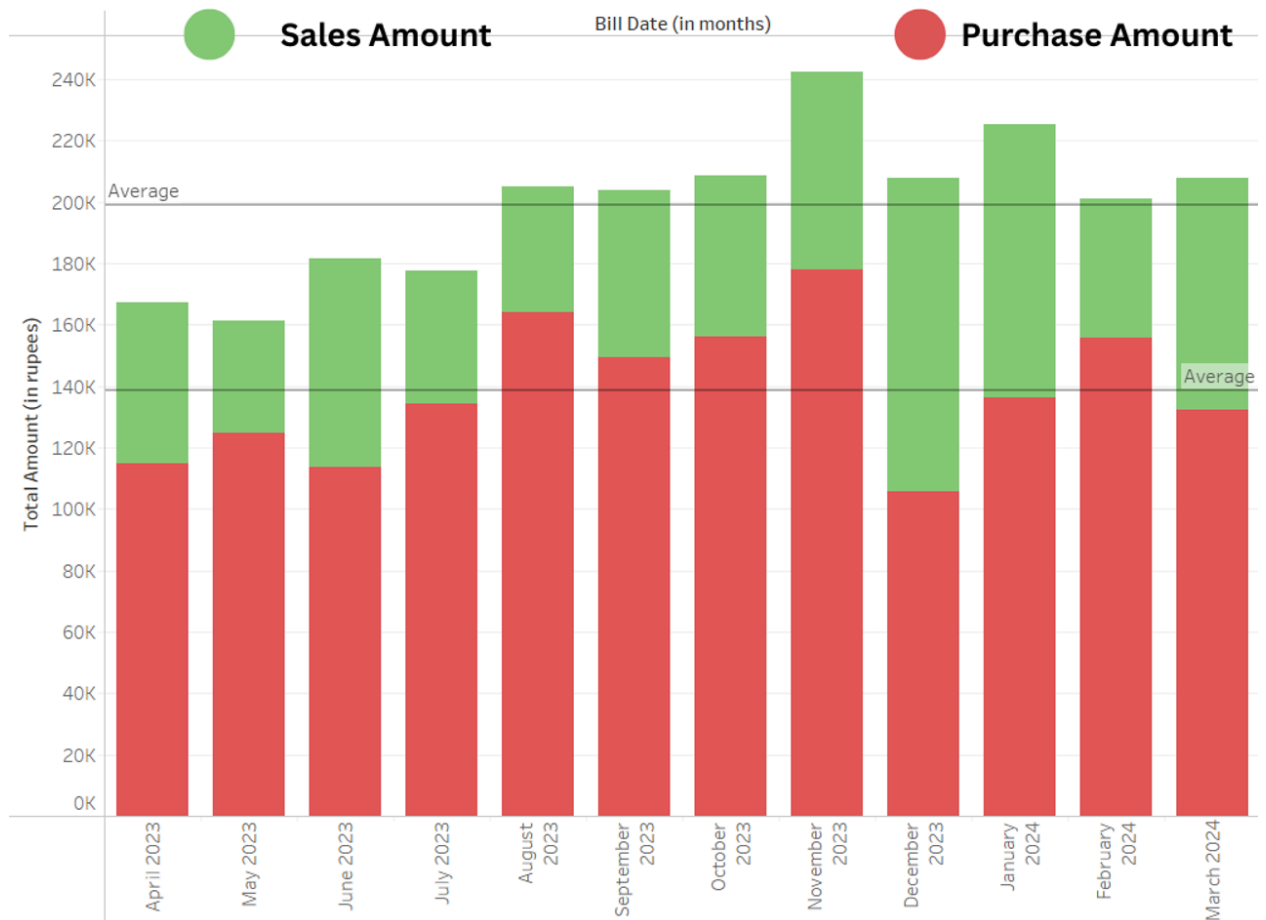
The Tree Map for profit distribution by company is created by visualizing company-level profit data from Excel in Tableau as a tree map. This approach clearly distinguishes top performers, such as BIOMAXX LIFE SC and GLAXO SMITHKLIN, from underperformers, supporting informed resource allocation decisions. Tree maps are justified here for their effectiveness in displaying hierarchical and proportional data, offering a compact yet comprehensive overview of profit distribution across companies.

2.2.8 Profit vs. Inventory Turnover (Scatter Plot with Quadrant Segmentation)

The Scatter Plot with Quadrant Segmentation is developed by plotting profit and inventory turnover data from Excel in Tableau, segmented into four quadrants: *Priority Procurement* (high turnover, high profit), *Strategic Procurement* (high profit, low turnover), *Procurement Avoidance* (low profit, low turnover), and an implied fourth quadrant (low profit, high turnover). This method enables the categorization of products for targeted procurement strategies. The scatter plot is ideal for analyzing relationships between two quantitative variables, and the quadrant segmentation simplifies strategic decision-making by clearly classifying products based on their performance metrics.

3 Results and Findings

3.1 Sales vs. Purchase (Stacked Bar Chart)



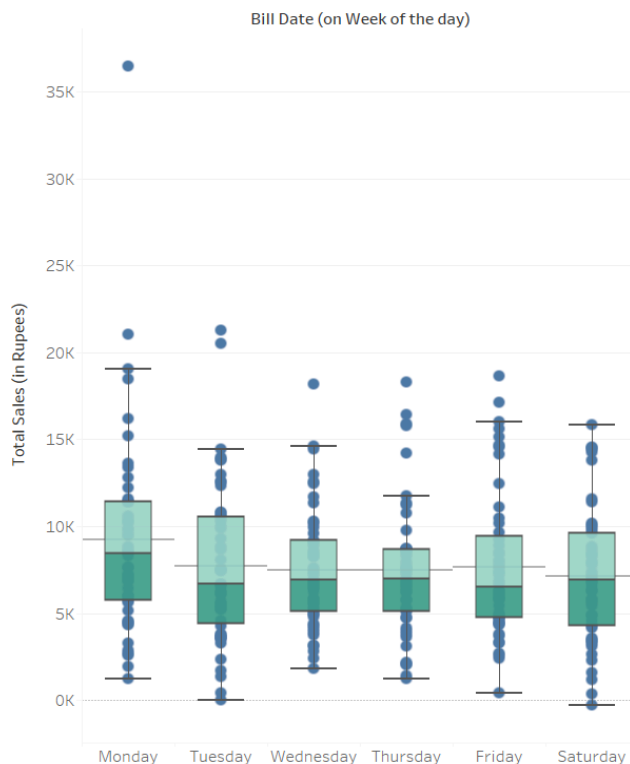
Sales vs Purchase
figure 3.1.1

This stacked bar chart visualizes monthly Purchase Amounts (red) and Total Sales Amounts (combined red and green bars) in rupees from April 2023 to March 2024. A key observation is that Total Sales consistently exceeded Purchase Amounts throughout the entire period, indicating sustained profitability month-over-month.

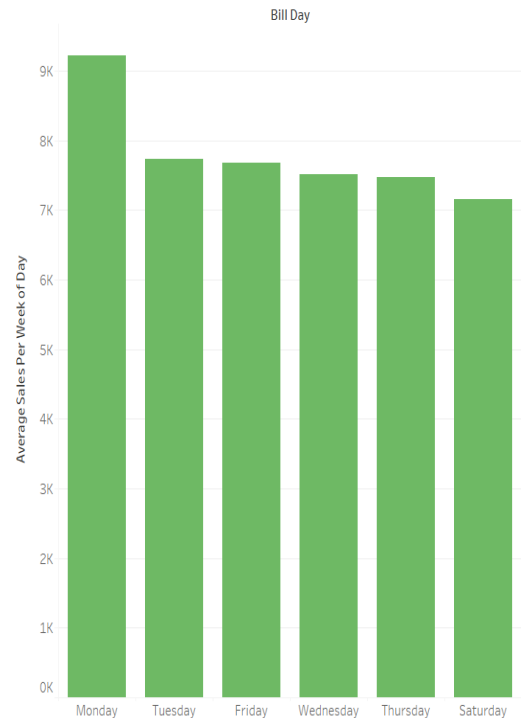
Both sales and purchases exhibit fluctuations. Total Sales peaked significantly in November 2023 (₹242,147) and January 2024 (₹225,310), while hitting lows in May 2023 (₹161,261) and April 2023 (₹167,064). Purchase amounts were highest in November 2023 (₹178,104), coinciding with peak sales, but were notably lowest in December 2023 (₹105,535), despite reasonably strong sales that month.

Overall, the chart depicts a business with consistent positive performance, managing to keep sales above purchasing costs, albeit with expected seasonal or monthly variations in volume for both activities. Average sales hover around ₹200K and purchases around ₹140K.

3.2 Box Plots (Weekly Profit Data by Day)



Box plot of weekly Sales
figure 3.2.1



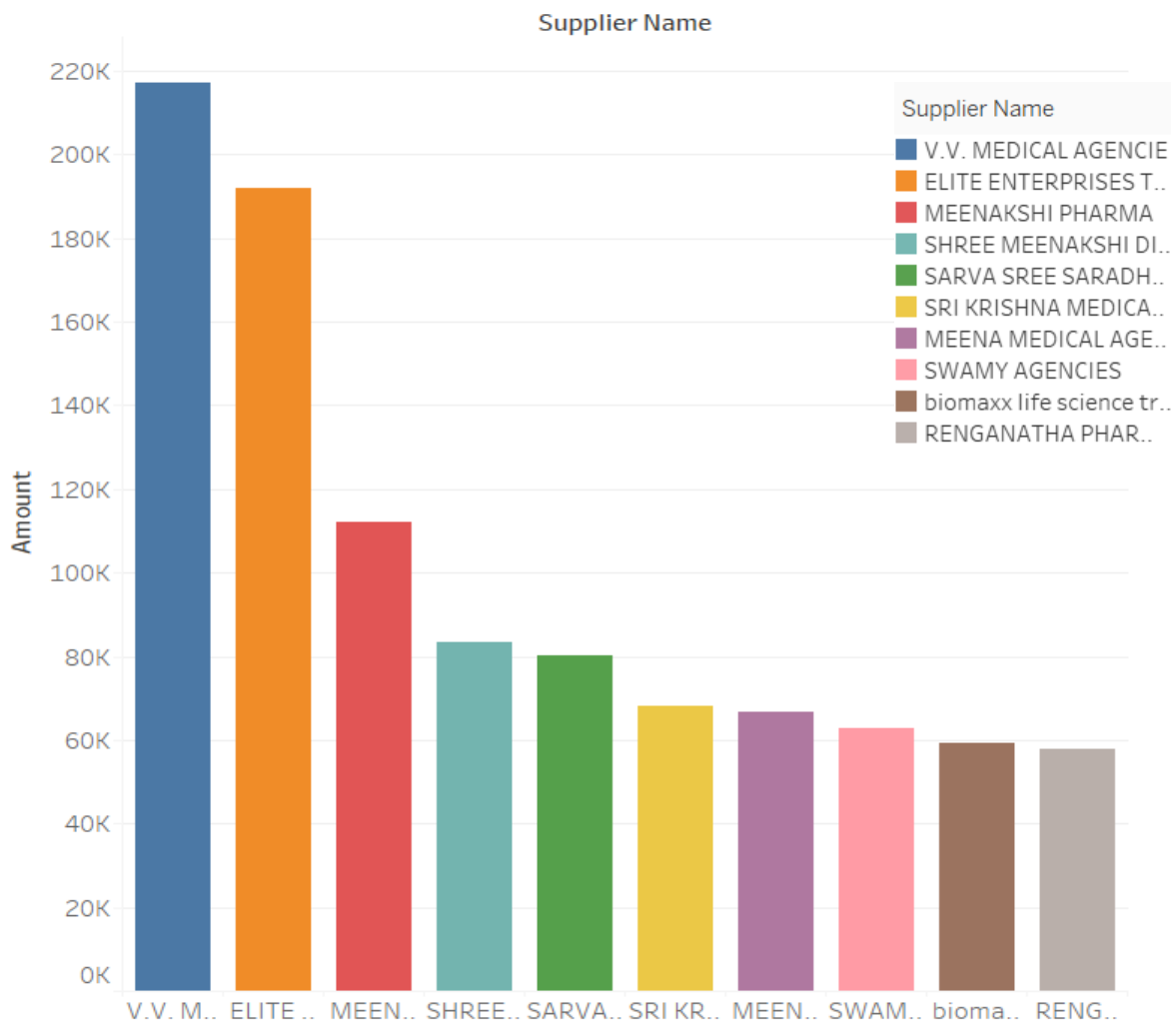
Average sale on day
figure 3.2.2

Problem Statement 1: The pharmacy experiences frequent stockouts of key products, indicating challenges with inventory planning adequacy.

The bar chart illustrates the average total daily sales, revealing that Monday has the highest average (around 9,200 INR), while Saturday has the lowest (around 7,150 INR). Tuesday, Friday, Wednesday, and Thursday show similar intermediate average sales (roughly 7,500-7,700 INR). If inventory planning were based solely on these averages, one might stock slightly more for Mondays and less for Saturdays. However, the box plot provides crucial context that challenges planning based solely on averages. It reveals significant variability in sales within each day. While the median sales (lines in the boxes) loosely follow the average trend, the spread of data points (dots) and the presence of numerous high-value outliers on all days demonstrate that actual daily sales frequently deviate substantially from the average. For instance, Monday shows an extreme outlier sale exceeding 35,000 INR, far above its high average. Similarly, other days, despite lower averages, exhibit sales peaks reaching 15,000-20,000 INR or more.

This discrepancy highlights the core issue: relying on average daily sales for inventory planning is inadequate. The high day-to-day volatility and the potential for significantly above-average sales spikes (outliers) on any given day mean that inventory levels set according to average demand will often be insufficient. This failure to account for the distribution and unpredictable peaks in sales, clearly visible in the box plot but hidden in the simple average bar chart, directly leads to understocking and the frequent stockouts of key products. Effective planning must incorporate safety stock calculations that consider this observed sales variability.

3.3 Top Suppliers (Bar Plot)



bar chart of top suppliers

figure 3.3.1

Problem Statement 2: The pharmacy depends significantly on a limited number of suppliers, increasing the risk of supply chain disruptions.

The problem statement highlights a critical operational concern: excessive dependence on a limited number of suppliers, which elevates the risk of supply chain disruptions. Analyzing the pharmacy's procurement data, specifically the purchase amounts allocated to each supplier as listed in Sheet 15_Summary.csv, provides direct evidence to evaluate and address this vulnerability.

The data clearly validates the concern regarding supplier concentration. The purchasing figures reveal a significant reliance on two primary suppliers: V.V. Medical Agencies (₹217,273) and Elite Enterprises Trichy (₹191,854). Combined, these two account for approximately ₹409,000, representing a substantial portion (around 41%) of the total spend detailed in this list (approx. ₹999,500). When the next largest supplier, Meenakshi Pharma (₹112,043), is included, these top

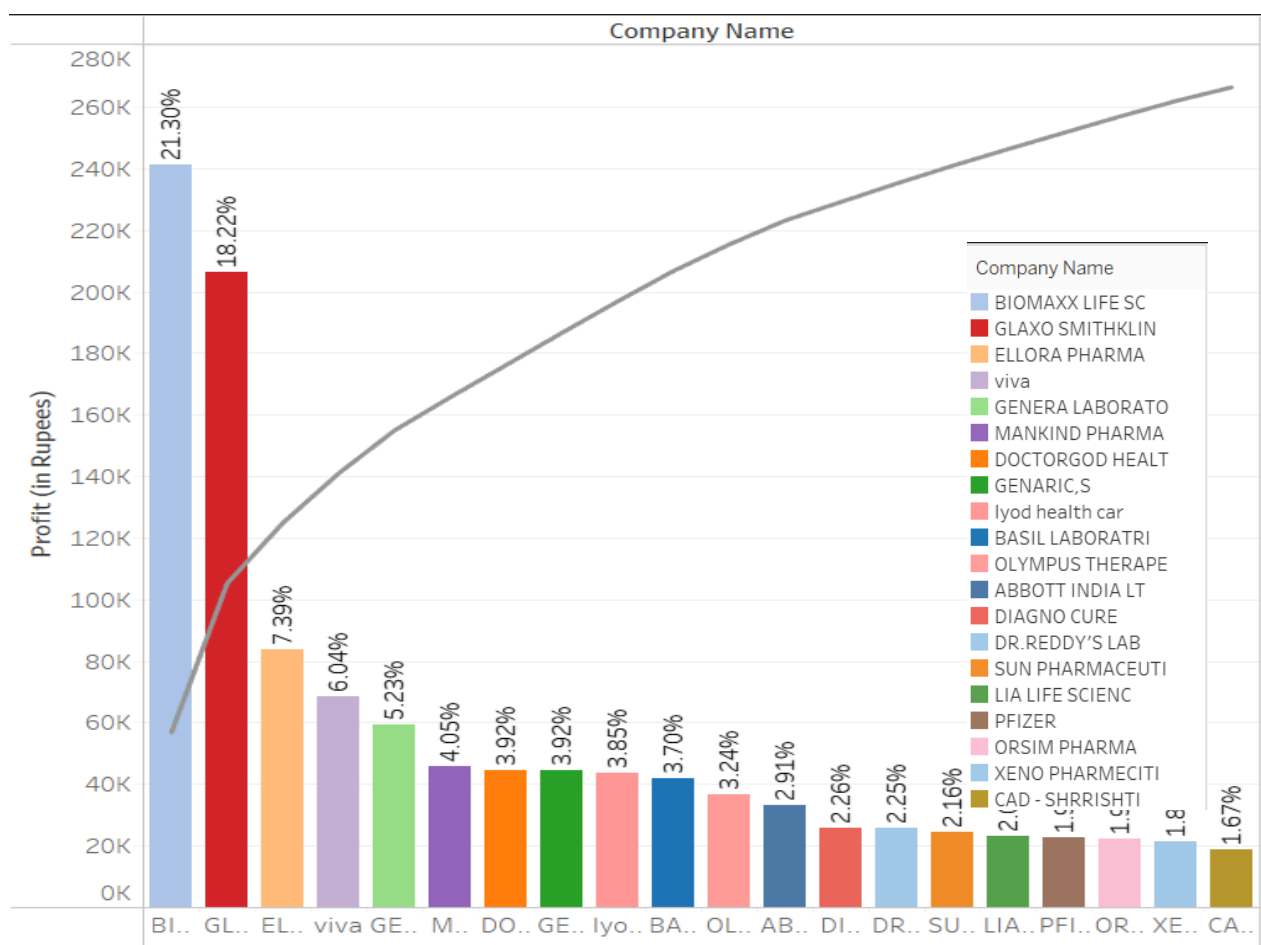
three suppliers command over half (approx. 52%) of the documented purchasing volume. This level of concentration inherently creates strategic vulnerability.

This dependence presents tangible risks. Any operational issues faced by V.V. Medical Agencies or Elite Enterprises – such as inventory shortages, logistical problems, financial instability, or even natural disasters affecting their facilities – could severely impact the pharmacy's ability to acquire a large portion of its necessary stock. This directly translates to potential lost sales, inability to fill prescriptions, and damage to customer trust and the pharmacy's reputation. Furthermore, heavy reliance limits the pharmacy's negotiating leverage regarding pricing, payment terms, and service levels. The suppliers, aware of their critical role, may have less incentive to offer competitive terms.

To mitigate this risk, proactive steps are necessary. Firstly, the pharmacy should actively seek and qualify secondary or alternative suppliers for critical product categories currently dominated by V.V. Medical and Elite Enterprises. This doesn't necessarily mean abandoning the primary suppliers but establishing backup options to ensure continuity during disruptions. Secondly, exploring direct relationships with manufacturers for certain high-volume or high-profit items (potentially like Biomaxx, even if currently sourced via distributors) could offer another channel and potentially better margins, reducing reliance on the main distributors for those specific lines. Thirdly, deliberately allocating portions of the purchasing volume for less critical or interchangeable items to capable mid-tier suppliers (like Shree Meenakshi Dist, Sarva Sree Saradhaa, etc.) can build relationships and capacity with alternative partners without immediately overhauling the entire procurement strategy.

In conclusion, the supplier purchase data confirms a significant concentration risk. While strong relationships with key suppliers like V.V. Medical and Elite Enterprises are important, the current level of dependency is precarious. Implementing strategies to diversify the supplier base, establish backup sources, and strategically distribute purchasing volume is crucial for enhancing supply chain resilience and reducing the pharmacy's vulnerability to disruptions.

3.4 Top 20% Products Contributing to Profit (Pareto Chart)



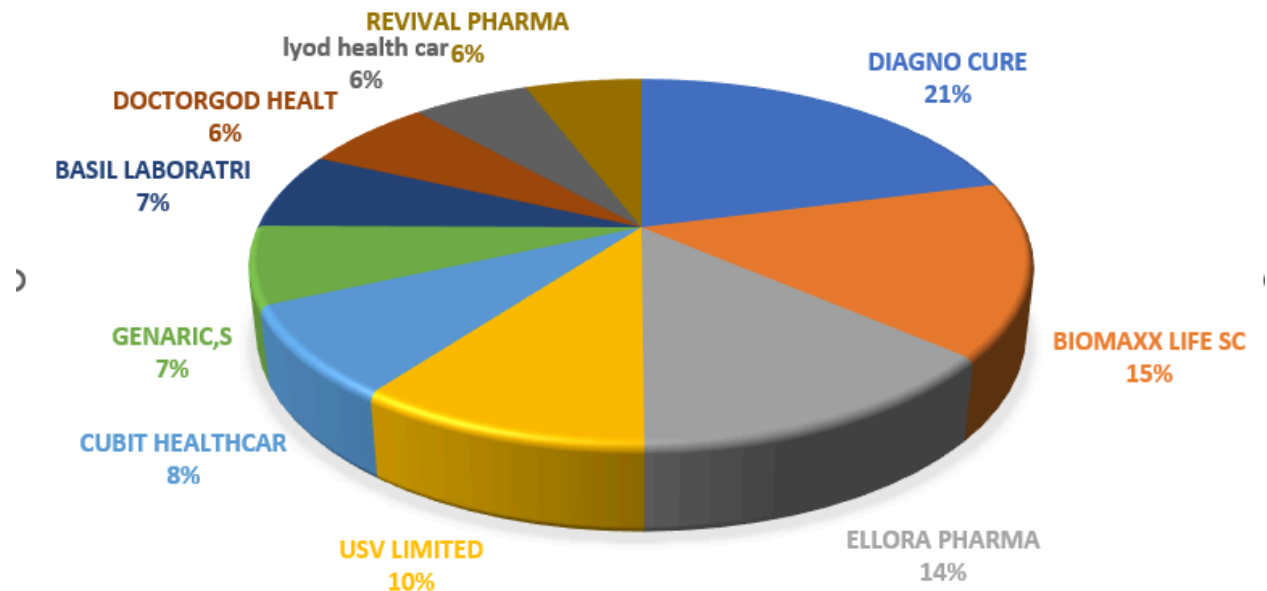
Pareto Chart
figure 3.4.1

Problem Statement 3: The pharmacy lacks clear insights into the profitability of individual products/suppliers, impacting informed decision-making.

Together, the top five businesses—Biomaxx Life Sciences, Glaxo SmithKline, Ellora Pharma, Viva, and General Laborato—contribute more than half of the ₹1,494,995.96 yearly profit, with Biomaxx Life Sciences and Glaxo SmithKline alone accounting for nearly 30%. This indicates a strong reliance on a few key suppliers, making their stability crucial for long-term business success. While these suppliers drive a significant portion of profitability, this dependence also presents risks. Any disruption in their supply chains, pricing fluctuations, or operational challenges could severely impact overall business performance.

To mitigate these risks, diversifying the supplier base is essential to reduce potential vulnerabilities. Strengthening partnerships with lower-tier businesses and improving their profitability can help create a more balanced revenue distribution. Additionally, optimizing procurement strategies by securing favorable pricing, negotiating better volume-based discounts, and aligning stock levels with demand patterns will further enhance financial stability. By strategically managing supplier relationships, businesses can ensure sustained growth, minimize disruptions, and maximize long-term profitability.

3.5 Company wise product distribution (Pie chart)



Company wise sales pie chart

figure 3.5.1

Problem Statement 3: The pharmacy lacks clear insights into the profitability of individual products/suppliers, impacting informed decision-making.

The challenge of lacking clear profitability insights, which hampers effective decision-making, can be partly addressed by understanding the primary drivers of revenue. This pie chart, illustrating the sales contribution percentage for various companies, provides a crucial first step by highlighting which entities generate the most significant sales volume for the pharmacy. While sales volume alone does not equate to profitability, identifying the major revenue contributors focuses attention on the areas where profitability analysis will have the most substantial impact.

The chart immediately reveals that a few key companies dominate the sales landscape. Diagno Cure commands the largest share at 21%, making it the single most significant contributor to top-line revenue. Following closely are Biomaxx Life SC (15%) and Ellora Pharma (14%). Together, these top three companies account for exactly half (50%) of the total sales represented. USV Limited (10%) also represents a substantial portion of sales. This concentration clearly indicates that the financial performance of these four companies heavily influences the pharmacy's overall revenue picture.

The next tier of contributors includes Cubit Healthcar (8%), Genaric,S (7%), Basil Laboratri (7%), Doctorgod Healt (6%), lyod health car (6%), and Revival Pharma (6%). While individually smaller, collectively they represent a significant portion of the remaining sales.

Crucially, understanding this sales distribution provides vital context when integrated with

profitability data (as seen in previous analyses). For instance:

- Diagono Cure's top sales position (21%) warrants close examination of its margins, as previous data suggested its profit contribution wasn't proportionally as high. High sales with potentially lower margins need careful management.

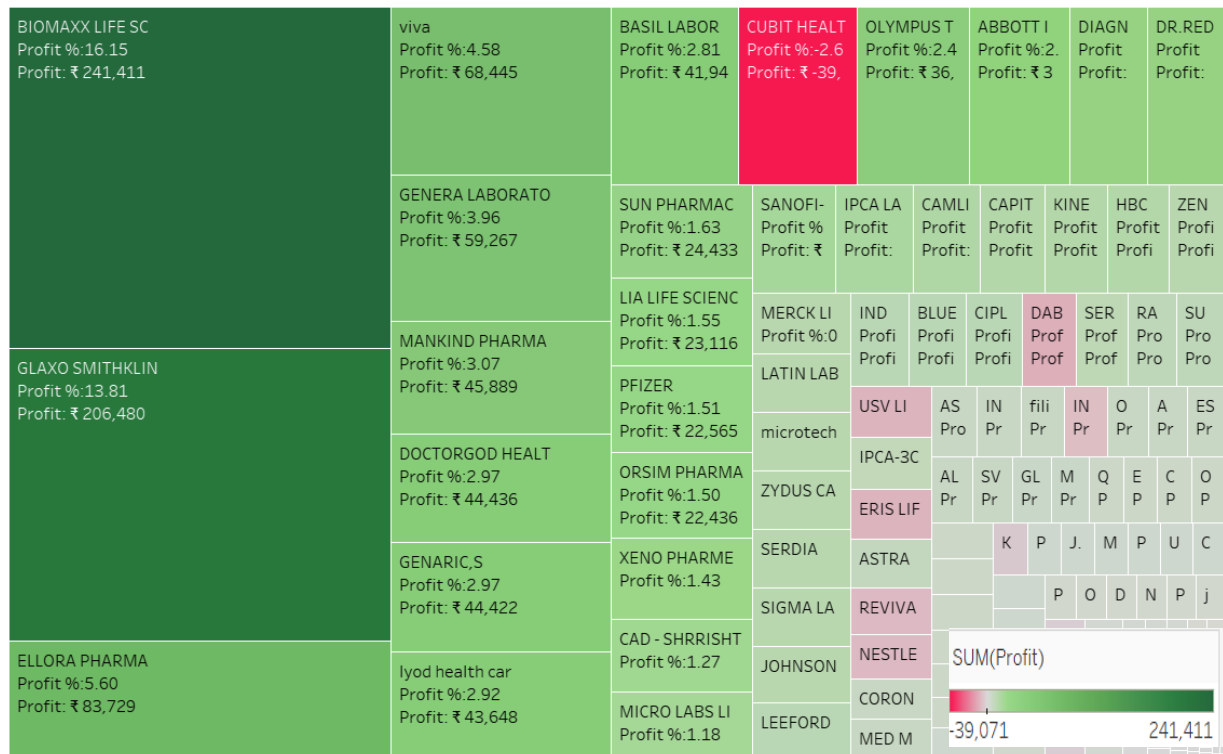
- Biomaxx Life SC and Ellora Pharma, with high sales (15% and 14% respectively) and previously established high profitability, are confirmed as critical drivers of both revenue and profit. Strategies should focus on protecting and potentially growing these relationships.

- Conversely, USV Limited (10% sales) and Cubit Healthcare (8% sales) were previously identified as loss-making. Their significant contribution to sales volume, despite negative profitability, highlights a critical area for immediate action – either drastic margin improvement or potential discontinuation.

- The mid-tier group (Basil, Genaric, S, etc.) represents steady contributors where maintaining consistent sales and profitability is important.

In conclusion, this sales contribution chart directly addresses the lack of insight by clearly mapping out the primary sources of revenue. It identifies the companies whose performance – positive or negative – disproportionately affects the pharmacy's financials. By cross-referencing this sales data with actual profit figures, the pharmacy gains the necessary clarity to make informed decisions, prioritizing actions on the high-impact companies, whether it's nurturing profitable winners, investigating margins on high-volume sellers, or addressing loss-making revenue streams.

3.6 Tree Map (Profit Distribution by Company)



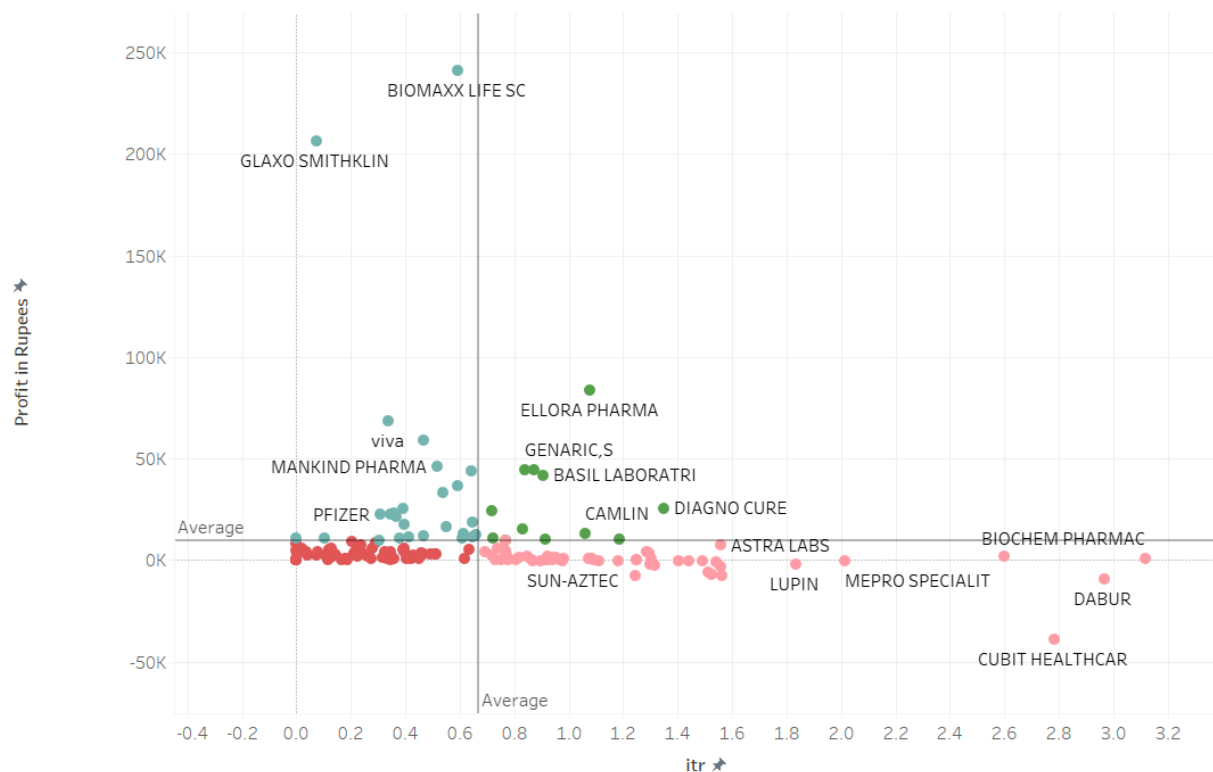
Tree Graph
figure 3.6.1

Problem Statement 3:The pharmacy lacks clear insights into the profitability of individual products/suppliers, impacting informed decision-making.

The tree map profit visualization highlights the profit distribution across various pharmaceutical companies. BIOMAXX LIFE SC and GLAXO SMITHKLIN are the top performers, contributing significantly to overall profitability with 16.15% and 13.81% profit margins, respectively. Ellora Pharma follows with 5.60% profit. Several mid-tier companies, such as Viva, Mankind Pharma, and Genera Laborato, show moderate profits ranging from 2% to 5%.

However, CUBIT HEALT is the only company incurring a significant loss (-2.6% profit, -39,000), highlighted in red. Some companies, such as Sanofi, Merck, and others, have minimal or neutral profits. The Pareto Principle applies here, as a few companies drive most of the profitability while many contribute marginally or remain neutral. This data suggests a concentration of profitability in a few key players, while a large number of smaller entities add minimal value. Strategies should focus on boosting underperforming brands and mitigating losses.

3.7 Scatter Plot with Quadrant Segmentation (Profit vs. Inventory Turnover)



Profit vs. Inventory Turnover
figure 3.7.1

Problem Statement 3:The pharmacy lacks clear insights into the profitability of individual products/suppliers, impacting informed decision-making.

The graphed data: [link](#)

The core challenge of operating a pharmacy effectively hinges on clear visibility into product or supplier profitability to enable informed, strategic decision-making. Analyzing performance through both the relationship between Profit and Inventory Turnover Rate (ITR) via the scatter plot, and the absolute profit contribution visualized in the bubble chart, provides the necessary multi-dimensional perspective to move beyond ambiguity and implement targeted actions.

The scatter plot revealed four distinct performance quadrants, crucially demonstrating that high profitability isn't solely dependent on high inventory turnover. Companies like Glaxo Smithkline and Biomaxx Life SC exemplify this, residing in the "High Profit, Low Turnover" space, suggesting strong margins compensate for slower stock movement. Conversely, entities like Ellora Pharma and Basil Laboratri occupy the desirable "High Profit, High Turnover" quadrant, indicating both operational efficiency and market success. The bubble chart powerfully underscores this by highlighting the sheer scale of profit contribution. Biomaxx Life SC (₹241k) and Glaxo Smithkline (₹206k) are clearly the financial pillars, their profit magnitude far exceeding others. Ellora Pharma (₹83k), viva (₹68k), and Genera Laborato (₹59k) form a significant second tier, followed by a cluster contributing ₹40k-₹46k (Mankind, Doctorgod,

Genaric,S, Basil, lyod).

Synthesizing these views leads to concrete, actionable strategies. Given their immense profit contribution despite low turnover, the primary goal for the pillars, Biomaxx and Glaxo, must be margin preservation and supply reliability. Actions should focus on securing strong supplier relationships and analyzing if low turnover is inherent to the product type or if specific SKUs lag unnecessarily. Maintaining premium pricing and avoiding aggressive promotions that could erode margins solely for turnover gains are crucial, alongside ensuring adequate stock levels to prevent lost sales of these high-value items.

For the stars like Ellora and Basil, representing the ideal balance of high profit and high turnover, maintaining operational excellence is key. This involves ensuring efficient replenishment systems and exploring opportunities to leverage their success, perhaps through line extensions or applying learned lessons elsewhere, while monitoring performance closely to sustain momentum.

The contributors group, including Viva, Genera, Mankind, Doctorgod, Genaric,S, and lyod, offers significant profit but requires tailored approaches based on their specific ITR profiles identified in the scatter plot. For those with lower turnover like Viva and Mankind, efforts should investigate barriers to faster sales, considering whether targeted marketing or better shelf placement could improve velocity without significantly increasing costs, carefully evaluating if margins support promotional activity. Conversely, for high-turnover contributors like Genaric,S and Basil, the focus should shift towards rigorous cost control and maintaining efficiency through tight COGS management and streamlined reordering processes.

Finally, addressing the low performers identified in the scatter plot's lower quadrants is essential. Those in the Low Profit/High Turnover category, such as Lupin and Cubit, require urgent margin analysis to understand why profit capture is failing despite demand, potentially implementing price adjustments or cost reductions. For entities stuck in the Low Profit/Low Turnover quadrant, a portfolio rationalization is necessary. These items consume resources with minimal return, demanding an evaluation of turnaround potential, but likely leading to decisive delisting to free up capital, space, and focus for the more profitable segments of the business. By applying these differentiated strategies, the pharmacy can leverage data insights for decisive actions that enhance financial health and operational effectiveness.

4 Interpretation of Results and Recommendation

The analysis performed in this project yields significant insights into Shree Chendur Medicals' operational dynamics, paving the way for concrete recommendations. Firstly, the examination of daily sales patterns, contrasting average figures with the detailed distribution shown in the box plots, provides a crucial understanding of demand variability. While averages suggest Mondays are the busiest, the box plots clearly illustrate that substantial sales volatility and high-value outlier transactions can occur on any day of the week. This insight reveals that relying solely on average daily sales for inventory planning is insufficient to meet the actual peaks in demand, potentially leading to the stockouts experienced. Therefore, it is recommended to enhance the inventory management approach by incorporating this observed sales volatility. Utilizing the detailed daily sales distributions allows for the calculation of more robust safety stock levels, perhaps based on upper quartile performance or observed outlier characteristics, moving beyond simple averages to ensure better stock availability and capture high-value sales opportunities whenever they arise.

Furthermore, the project highlights a distinct concentration in both profitability and supplier reliance. The Pareto chart and Tree Map strongly indicate that a significant portion of the pharmacy's profit is driven by a select few entities, notably Biomaxx Life Sciences and Glaxo SmithKline. Simultaneously, the analysis of purchasing data reveals a substantial dependence on V.V. Medical Agencies and Elite Enterprises, who collectively account for a large share of procurement volume. This concentration presents both an opportunity for focused management of key profit drivers and a potential risk due to supplier dependency. Consequently, recommendations focus on securing these vital profit streams by prioritizing strong relationships and consistent supply for top contributors like Biomaxx and Glaxo. To mitigate the identified supplier concentration risk, a strategic approach is advised: while maintaining strong ties with primary distributors, proactively explore assigning specific product categories or managed volume increments to capable mid-tier suppliers identified within the data, such as Meenakshi Pharma or Shree Meenakshi Dist. This gradual diversification builds resilience. Additionally, the data points towards specific areas needing attention, such as the negative contribution from CUBIT HEALT, which warrants a targeted performance review potentially leading to repricing, cost negotiation, or strategic delisting.

Finally, the Profit vs. Inventory Turnover scatter plot effectively segments products and suppliers into distinct performance quadrants, demonstrating that a uniform management strategy is suboptimal. Different groups exhibit unique characteristics requiring tailored approaches. Based on these quadrants, differentiated strategies are recommended. For 'Stars' like Ellora and Basil, characterized by high profit and high turnover, the focus should be on maintaining operational excellence and efficient replenishment. For 'Pillars' such as Glaxo and Biomaxx, offering high profit despite lower turnover, the priorities are margin protection and ensuring absolute supply reliability, while perhaps investigating specific reasons for slower movement. Items falling into the 'Question Marks' category (low profit, high turnover, e.g., Lupin) demand urgent margin analysis to address profit leakage through cost control or pricing adjustments. Lastly, those in the 'bad' quadrant (low profit, low turnover) require critical evaluation regarding their strategic fit

and potential, likely leading to delisting to free up resources for more productive segments of the business. By implementing these integrated, data-driven strategies derived from the project's analysis, Shree Chendur Medicals can achieve enhanced inventory resilience, reduced supplier risk, optimized stock levels, and ultimately, improved overall financial health and operational effectiveness.