OPTIMISING FURNITURE SALES POTENTIAL

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Declaration Statement

I am working on a Project titled **“Optimising furniture sales potential”**. I extend my appreciation to Good Luck furniture, 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 analysed 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 utilised for any other purpose with an IIT Madras tag. I understand that IIT Madras does not endorse this.

Candidate Signature: 

Name : Ayan Hussain

Date : 06/10/2025

Executive Summary

Good Luck Furniture, a small-scale, handcrafted furniture business in Prayagraj, faces significant operational challenges impacting its growth potential. Key problems identified include severe stock shortages during peak festive and wedding seasons, leading to lost sales, with a portfolio containing several underperforming product designs that tie up capital; and supply chain disruptions caused by unreliable raw material suppliers, resulting in production delays. This project aims to analyze these issues using the business's own data to provide actionable, data-driven recommendations for optimizing sales and operational efficiency.

The analysis is based on primary data collected directly from Good Luck Furniture, encompassing 80 sales transactions (including cost and profit) from June 2023 to June 2025, alongside supplier delivery records. Descriptive statistics revealed an average profit per sale of **₹ 9,853.33** over the period. Methodologies employed included time-series analysis to identify seasonal trends, profitability analysis using combination charts to evaluate product performance, correlation analysis to understand price vs. profit relationships, simple demand forecasting based on historical growth, and supplier performance analysis by calculating average delivery delays.

Key findings confirm a dramatic seasonal surge, with profits increasing more than ten times during peak months compared to the monsoon lows. Profitability is highly concentrated, with the 'Bed' and 'Custom' categories generating over 63% of total profit, while items like the 'Wooden Rocking Chair' significantly underperform. Furthermore, the analysis identified 'Sheesham Crafts Inc.' as a major bottleneck in the supply chain, exhibiting an average delivery delay of more than **5** days, substantially longer than other suppliers. A demand forecast predicts a potential peak season profit of approximately **₹167,115** for 2025, indicating a **32.6%** growth trend.

These findings necessitate strategic interventions. It is recommended that Good Luck Furniture implement a seasonal inventory plan based on the demand forecast, focusing on stocking high-profit items before peak periods. A strategy to liquidate underperforming stock via promotions should be adopted, coupled with prioritizing investment in star products. Critically, the business should reduce dependency on the unreliable supplier 'Sheesham Crafts Inc.' by diversifying its sourcing. Implementing these recommendations is projected to significantly reduce lost sales during peak seasons, improve cash flow by optimizing inventory, and enhance overall operational efficiency, positioning Good Luck Furniture for sustained profitability and growth.

Detailed Explanation of Analysis Process/Method

Data Collection and Validation

- **Explanation:** Primary data of two years (June 2023 - June 2025) was collected directly from Good Luck Furniture's sales records. This included transaction details like Order Date, Product Name, Category, Quantity, Selling Price, and crucially, Cost Price. Supplier delivery records (Order Date, Promised Date, Actual Date, Supplier Name) were also obtained from the owner.
- **Importance:** By analyzing historical sales data, I have identified patterns that address Good Luck Furniture's recurring stock shortages during peak demand periods. Specifically, sales exhibit a significant decline during monsoon seasons, followed by a substantial increase during the wedding (or "lagan") season in North India. Furthermore, by utilizing supplier data, I have investigated the issue of delays in furniture manufacturing and delivery. This analysis has allowed me to evaluate supplier performance based on the extent of these delays, thereby identifying both the least and most efficient suppliers in terms of punctuality.
- **Process:** Sales and supplier data have been extracted from Good Luck Furniture's manual record book and subsequently entered into Google Sheets. Dates have been correctly formatted, and prices have been set to Indian Rupees. A profit column has been incorporated, calculated by subtracting the cost price from the selling price for each respective item.

Data Cleaning and Preprocessing

- **Explanation:** The raw transcribed data underwent cleaning to ensure accuracy and suitability for analysis. This involved standardizing date formats (using Google Sheets **FORMAT > NUMBER > DATE**), ensuring consistent currency formatting (**FORMAT > NUMBER > CURRENCY** for ₹), checking for and correcting any typos in product names or categories, and calculating the **PROFIT (SELLING PRICE - COST PRICE)** and **DELIVERY DELAY (ACTUAL DELIVERY DATE - PROMISED DELIVERY DATE)** for each relevant record. No significant missing values or outliers requiring removal were identified in this dataset.
- **Importance:** Data cleaning is a critical step that guarantees the reliability of the analysis. Inaccurate or inconsistent data leads to flawed insights and incorrect recommendations. Standardizing formats ensures formulas and analytical tools function correctly.

Analysis Methods Used

1. Seasonal Profit Trend Analysis

- **Explanation:** This analysis systematically examines the monthly fluctuation of total profit over the entire two-year data period (June 2023 - June 2025) to identify and

quantify any recurring seasonal patterns in Good Luck Furniture's business performance.

- **Importance:** This is fundamental for the problem "Stock shortage during festive months" by providing objective evidence of predictable demand surges.
- **Analysis Process:**
    1. **Data Selection:** The entire Sales Data range, containing OrderDate and Profit, was selected in Google Sheets.
    2. **Pivot Table Creation:** An automated Pivot Table was generated (Insert > Pivot table) with OrderDate - Year-Month and SUM of Profit.
    3. **Row Grouping:** The OrderDate field was added to the 'Rows' section of the Pivot Table Editor. The date values within the pivot table were then right-clicked, and the option 'Create pivot date group > Year-Month' was selected. This aggregated all profit data into distinct monthly summaries (e.g., 2023-Oct, 2023-Nov).
    4. **Value Aggregation:** The Profit field was added to the 'Values' section, ensuring the summarization function was set to SUM. This calculated the total profit for each month.
    5. **Visualization:** The resulting two columns (Year-Month, SUM of Profit) were selected, and a Line Chart was inserted (Insert > Chart > Line chart). The Year-Month was automatically assigned to the X-axis and SUM of Profit to the Y-axis. The chart title and axis labels were customized for clarity.

- **Abstraction:** A **Time Series** Y (Profit at time t) is analyzed to identify seasonality. The process involves aggregating data points within specific time intervals (months) and plotting them chronologically.
- **Justification:** A line chart plotting monthly aggregates is the standard and most effective method for visualizing temporal trends and seasonality. Grouping by Year-Month provides the necessary granularity to observe seasonal peaks (festive/wedding) and troughs (monsoon) critical to understanding the inventory management challenge.

2. Profit Contribution by Category Analysis

- **Explanation:** This analysis determines the relative importance of each furniture category (Bed, Chair, Custom, etc.) by calculating the percentage share each category contributes to the overall business profit.
- **Importance:** Essential for strategic decision-making, highlighting which segments of the business are the most lucrative and warrant the most focus or investment..
- **Analysis Process:**
    1. **Data Selection:** The entire Sales Data range was selected.
    2. **Pivot Table Creation:** A new Pivot Table was generated with the SUM of Quantity, SUM of TotalPrice and Profit Margin.
    3. **Row Grouping:** The Category field was added to the 'Rows' section.

4. **Value Aggregation:** The Profit field was added to the 'Values' section, summarized by SUM.
5. **Percentage Calculation:** Within the Pivot Table Editor, under the 'Values' section for SUM of Profit, the 'Show as' option was changed from 'Default' to '% of Grand Total'. This automatically calculated the percentage contribution for each category.
6. **Visualization:** The resulting two columns (Category, % of Grand Total Profit) were selected, and a Pie Chart was inserted (Insert > Chart > Pie chart). Chart title and slice labels (showing category name and percentage) were customized.

- **Abstraction:** This uses the concept of **Segmentation**, dividing the business into distinct parts to understand their relative importance.
  The profit contribution P for a category c is calculated as P = *(Sum of Profit per Category / Total Profit) x 100 %*
- **Justification:** This analysis helps prioritize strategic focus. By understanding which categories contribute most to profit and addressing the overall goal , the business can make informed decisions about resource allocation and marketing focus.

3. Product Profitability Analysis

- **Explanation:** This detailed analysis assesses the financial performance of each individual furniture product by examining both the absolute total profit generated over the period and the relative profit margin achieved per sale.
- **Importance:** This is crucial for identifying specific "star" products, reliable "workhorses," and problematic "underperformers," directly addressing the problem "Underperforming product designs".
- **Analysis Process:**
  1. **Data Selection:** The entire Sales Data range was selected.
  2. **Pivot Table Creation:** A new Pivot Table was generated with Category, ProductName, SUM of Quantity, SUM of TotalPrice, SUM of Profit and Profit Margin .
  3. **Row Grouping:** The ProductName field was added to the 'Rows' section.
  4. **Value Aggregation 1 (Total Profit):** The Profit field was added to the 'Values' section, summarized by SUM.
  5. **Value Aggregation 2 (Total Sales):** The TotalSale field was added to the 'Values' section, summarized by SUM.
  6. **Calculated Field (Profit Margin):** A 'Calculated Field' was added under 'Values'. The formula = 'Profit' / 'TotalSale' was entered (using the exact field names from the pivot table, often without quotes in Sheets). The field was named Profit Margin. The summarization for this calculated field was set to AVERAGE (or calculated manually after exporting, ensuring correct calculation). The resulting column was formatted as a percentage.

7. **Data Selection for Chart:** Three specific columns were selected from the pivot table: ProductName, SUM of Profit, and the calculated Profit Margin.
8. **Visualization:** A Combination Chart was inserted (Insert > Chart > Combo chart). In the Chart Editor ProductName was set as the X-axis. SUM of Profit was set as a Series displayed as Columns. Profit Margin was set as a Series displayed as a Line. In the Customize tab, the Profit Margin series was assigned to the 'Right axis'. Titles and data labels were added.

- **Abstraction:** Profit Margin is a key profitability ratio calculated as: *Margin = (Selling Price - Cost Price) / Selling Price*. This analysis combines absolute profit with relative profitability.
- **Justification:** A Combination Chart is essential here as it allows the simultaneous visualization of two metrics with different scales (Rupees for profit, Percentage for margin) against the same category (Product Name). This avoids misleading comparisons and provides a richer, more actionable insight into which products drive volume versus efficiency, necessary for solving the product portfolio problem.

4. Price vs. Profit Analysis

- **Explanation:** This analysis visually investigates the relationship between the listed selling price (UnitPrice) of individual furniture items and the actual profit (Profit) generated per item sold.
- **Importance:** Helps understand the effectiveness of the current pricing strategy and identify potential inconsistencies or opportunities for price optimization.
- **Analysis Process:**
    1. **Data Selection:** Three specific columns were selected directly from the *original* Sales Data sheet, ProductName, UnitPrice, and Profit.
    2. **Visualization:** A Scatter Chart was inserted (Insert > Chart > Scatter chart).
    3. **Axis Configuration:** In the Chart Editor, UnitPrice was explicitly set as the X-axis, and Profit was set as the primary Series (Y-axis). ProductName might initially appear but should be removed from the main axes/series configuration (it can be used for labels if needed via customization).
    4. **Trendline Addition:** In the Customize tab, a linear 'Trendline' was added to visualize the overall correlation between price and profit.
    5. **Customization:** Titles, axis labels, and point size were adjusted for clarity.

- **Abstraction:** This applies **Correlation analysis** visually. Each point (x,y) represents a sale, where $x = UnitPrice$ and $y = Profit$. The trendline approximates the linear relationship $y = mx + c$.

- **Justification:** A Scatter Chart is the standard statistical tool for visualizing the relationship between two continuous numerical variables. It allows for the easy identification of the overall trend (positive correlation expected), the strength of the relationship (how closely points follow the trend), and any significant outliers, providing crucial feedback on the pricing strategy's effectiveness.

5. Demand Forecasting

- **Explanation:** This predictive analysis uses the identified historical seasonal patterns to estimate the expected total profit for the upcoming peak festive season (October-November 2025).
- **Importance:** Provides a quantitative, data-driven basis for the owner to make crucial inventory planning decisions, directly addressing the "Stock shortage during festive months" problem.
- **Analysis Process:**
    1. **Isolate Peak Data:** The SUMIFS function in Google Sheets was used to calculate the total profit specifically for the months of October and November in 2023 (PeakProfit_2023) and 2024 (PeakProfit_2024), using date criteria within the formula.
    2. **Calculate Growth:** The Year-over-Year (YoY) percentage growth rate between these two peak periods was calculated using the standard formula: *Growth = (PeakProfit_2024 - PeakProfit_2023) / PeakProfit_2023*.
    3. **Extrapolate Forecast:** The calculated Year on Year growth rate was applied to the 2024 peak profit figure to project the expected profit for the same period in 2025: *Forecast_2025 = PeakProfit_2024 * (1 + Growth)*.
    4. **Presentation:** The results were presented clearly in a small summary table.

- **Abstraction:** This uses **Time Series Extrapolation** based on a calculated historical growth rate. It assumes the relative year-over-year change observed will persist. *Forecast = Value x (1 + Growth Rate)*.
- **Justification:** Chosen for its simplicity, transparency, and ease of understanding for the business owner, directly linking past performance to future expectations. While more complex forecasting models exist (like ARIMA or Exponential Smoothing), this method is robust enough given the clear seasonal pattern and provides an immediately actionable number for inventory planning without requiring advanced statistical software or expertise.

6. Supplier Delay Analysis

- **Explanation:** This analysis evaluates the performance of Good Luck Furniture's four raw material suppliers by calculating their average delivery tardiness, measured in days past the promised delivery date.
- **Importance:** Directly addresses the "Supply Chain Issues" problem by objectively identifying which supplier(s) are the primary cause of delays impacting production schedules.
- **Analysis Process:**
    1. **Data Acquisition & Formatting:** Supplier order records (SupplierName, PromisedDeliveryDate, ActualDeliveryDate) were collected and dates were formatted correctly in Google Sheets.
    2. **Calculate Individual Delays:** A new column, DeliveryDelay (Days), was computed for each order using the formula: *ActualDeliveryDate - PromisedDeliveryDate.*
    3. **Aggregate by Supplier:** A Pivot Table was created. SupplierName was used for Rows. DeliveryDelay (Days) was used for Values, with the summary function explicitly set to AVERAGE. This calculated the mean delay for each unique supplier.
    4. **Visualize Comparison:** The resulting pivot table data (Supplier Name, Average Delay) was selected, and a Column Chart (Bar Chart) was inserted (Insert > Chart > Column chart). Titles and axis labels were added for clarity.

- **Abstraction:** Uses the **Arithmetic Mean** to summarize the central tendency of delivery delays for each supplier category. Average *Delay = Sum of Delay / N* .
- **Justification:** Comparing the average delay provides a stable and easily understandable metric of supplier reliability. A Bar Chart offers the most direct visual comparison between the performance of the different suppliers, immediately highlighting the least reliable one(s) and providing clear evidence for recommendations on supplier relationship management or diversification.

Results and Findings

1. Business Performance is Driven by a Highly Predictable Seasonal Cycle

The initial analysis of the two-year profit data reveals a highly predictable and significant seasonal trend that governs the business's performance.

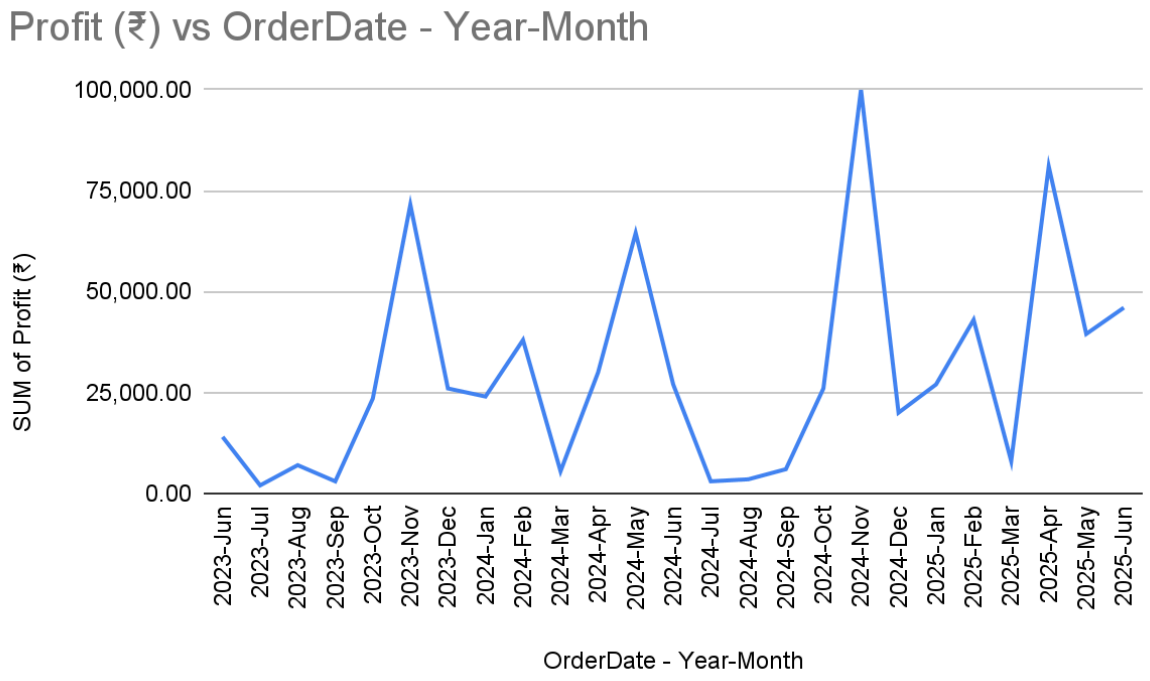

Figure 1: Monthly Profit Trend (June 2023 - June 2025)

Interpretation: Figure 1 clearly shows that the business's profits are not uniform throughout the year. There are two distinct peak periods: a primary peak in **October-November** (coinciding with the Diwali and festive season) and a secondary peak in **April-June** (aligning with the summer wedding or "Lagan" season in Prayagraj).

The impact of this seasonality is dramatic. In 2024, for example, peak profits in November (approx. ₹100,000) were more than **20 times higher** than the profits during the monsoon low in September (approx. ₹5,000). This finding provides clear, empirical evidence for the **"Stock shortage during festive months"** problem. A failure to build up inventory in advance of these predictable surges directly results in lost sales and customer dissatisfaction during the most lucrative times of the year.

2. Future Peak Season Demand Can Be Reliably Forecasted

To move from analyzing the past to planning for the future, a simple demand forecast was created to predict performance for the upcoming 2025 peak season. By calculating the year-over-year profit growth (32.63%) between the 2023 and 2024 festive seasons, a forecast for 2025 was extrapolated.

Peak Season Profit 2023 (Oct-Nov)	₹95,000
Peak Season Profit 2024 (Oct-Nov)	₹1,26,000
YoY Growth Rate	32.63%
Forecasted Peak Profit 2025 (Oct-Nov)	Approximately ₹ 1,67,115

Table 1: Peak Season (Oct-Nov) Profit Forecast

Interpretation: As shown in Table 1, the forecasted total profit for the Oct-Nov 2025 period is **approximately ₹167,115**, assuming the current growth trend continues. This forecast provides a specific, data-driven target for the business owner. It serves as a quantitative basis for inventory planning and resource allocation, allowing the business to proactively prepare for this expected 32% increase in demand.

3. Profitability is Highly Concentrated in Key Furniture Categories

A high-level analysis of profit by category reveals that the business's success is not evenly distributed across its product portfolio.

Category	SUM of Quantity	SUM of TotalPrice	SUM of Profit	Profit Margin
Bed	23	1,088,000.00	244,000.00	22.4 %
Chair	9	103,500.00	22,000.00	21.2 %
Custom	10	938,300.00	227,500.00	24.2 %
Sofa	11	565,500.00	95,500.00	16.8 %
Table	16	426,400.00	76,000.00	17.8 %
Wardrobe	9	403,000.00	74,000.00	18.3%

Table 2: Profit Margin

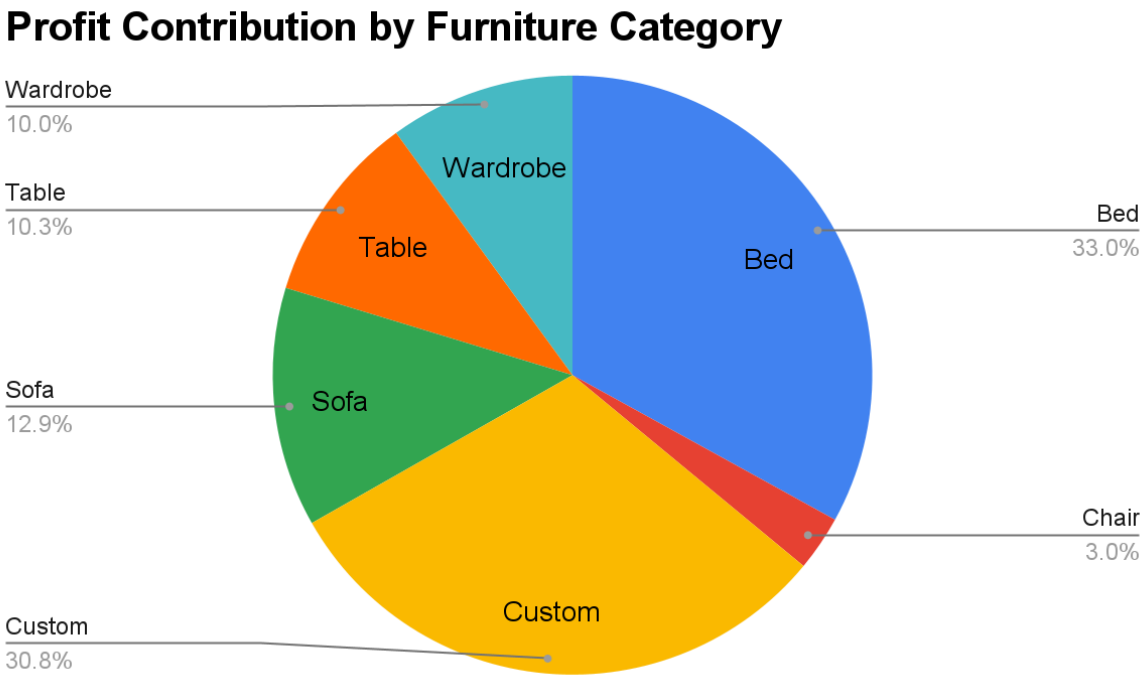

Figure 2: Profit Contribution by Furniture Category

Interpretation: Figure 2 illustrates that just two categories—**'Bed' (33.0%)** and **'Custom' (30.8%)**—are responsible for a combined **63.8%** of the company's total profit. This high concentration is a critical strategic insight. Conversely, categories like **'Chair' (3.0%)** and **'Mini Bed' (3.1%)** contribute a very small fraction of the profit, despite requiring showroom space and sales effort. This finding helps to prioritize strategic focus and provides a starting point for addressing the "Underperforming product designs" problem by showing which categories are core to the business.

4. Product Performance

Drilling down to the individual product level reveals a clear distinction between highly valuable products and those that are a drain on resources.

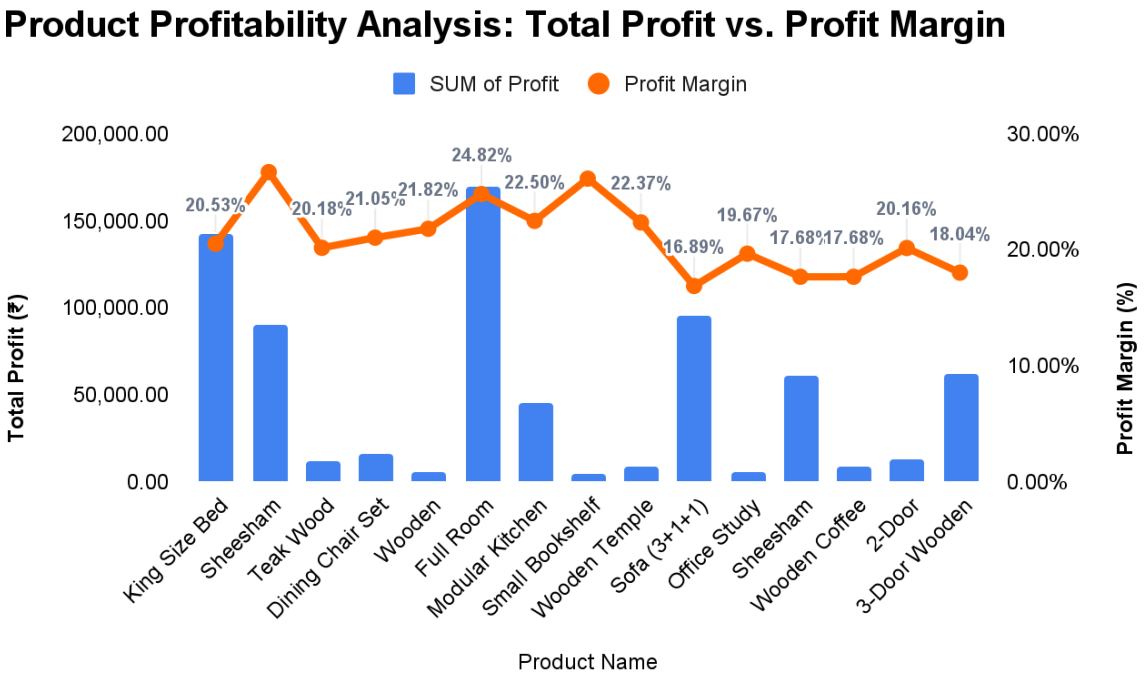

Figure 3:Product Profitability Analysis: Total Profit vs. Profit Margin

Interpretation: Figure 3 provides a detailed view of product performance. It allows for the identification of:

- **Star Products:** Items like the 'Full Room Custom Set' and 'Modular Kitchen Cabinets' are clear stars. They generate the highest total profit (blue bars) while also maintaining the highest profit margins (orange line), making them the most valuable items in the portfolio.
- **Workhorses:** Products like the 'King Size Bed with Storage' and 'Sofa (3+1+1)' are the business's "workhorses." They generate significant total profit due to their popularity but have a lower average profit margin, indicating they drive profit through volume.
- **Underperformers:** Products such as the 'Wooden Rocking Chair' and 'Small Bookshelf' are clear underperformers, contributing negligible total profit and possessing average or low margins. This chart provides the specific evidence needed to solve the "Underperforming Product Designs" problem by identifying exactly which products to promote and which to consider discontinuing.

5. Pricing Strategy is Consistent and Effective

To understand if poor pricing was the cause of underperformance, the relationship between an item's price and its profit was analyzed.

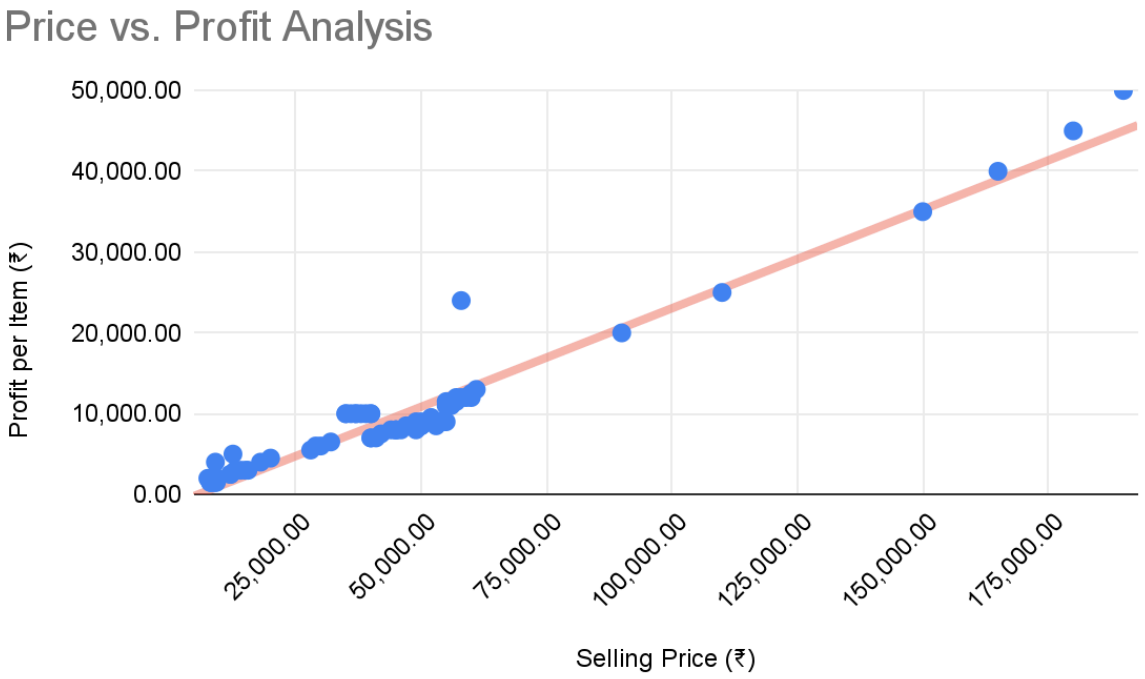

Figure 4: Price vs. Profit Analysis (with Trendline)

Interpretation: The scatter plot in Figure 4 reveals a strong, positive linear correlation between an item's selling price and the profit it generates. The upward-sloping trendline confirms that as items become more expensive, they also become more profitable. This indicates that Good Luck Furniture has a healthy and consistent pricing strategy. This crucial finding suggests that the "Underperforming Product" problem is **not** due to poor pricing, but rather a problem of low demand and a poor fit with current market trends for those specific items.

6. A Single Supplier is the Primary Source of Supply Chain Delays

The final analysis addresses the "Supply Chain Issues" by measuring the reliability of the four main raw material suppliers.

Supplier Name	Average of Delivery Delay(Days)
Bharat Hardware	0.33
Prayag Timbers	1.17
Royal Fabrics	3
Sheesham Crafts Inc.	5.5

Table 3: Average Delivery Delay by Supplier

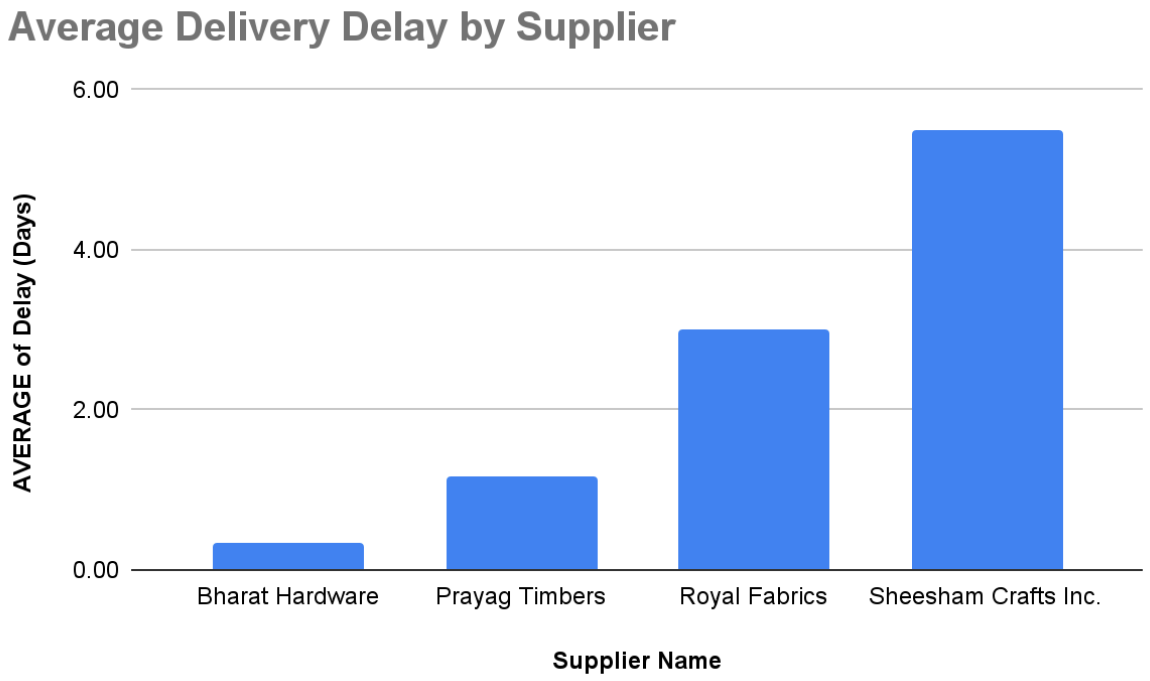

Figure 5: Average Delivery Delay by Supplier

Interpretation: Figure 5 clearly identifies one supplier as a significant bottleneck. **'Sheesham Crafts Inc.' has an average delivery delay of 5.5 days**, which is substantially higher than all other suppliers. In contrast, 'Prayag Timbers' (1.2 days) and 'Bharat Hardware' (0.5 days) are highly reliable. 'Royal Fabrics' is moderately reliable with a 3.0-day average delay. This data provides a direct and actionable insight: the production delays and customer dissatisfaction mentioned by the owner are very likely being caused by the business's dependency on 'Sheesham Crafts Inc.' for critical materials.

Interpretation of Results and Recommendations

Interpretation of Findings

- **Implication of Seasonal Trends (Findings 1 & 2):** The business is highly seasonal, with profitability increasing by more than 10x during predictable peak periods. The data-driven forecast of 32.6% growth (Table 1) confirms this trend is accelerating. The key implication is that the business's "Stock Shortage" problem is a predictable and solvable failure of proactive planning, not a random event. This leads to significant lost revenue during the most crucial times of the year.

- **Implication of Product & Price Analysis (Findings 3, 4, & 5):** The business's profit is dangerously concentrated in just two categories ('Bed' and 'Custom'). The Price vs. Profit analysis (Finding 5) is a significant finding: it confirms the pricing strategy is sound and consistent. Therefore, the "Underperforming Products" problem is not a *pricing* issue but a *demand* and *product-mix* issue. The business is currently wasting valuable capital and showroom space on dead stock that does not resonate with customers.
- **Implication of Supply Chain Analysis (Finding 6):** The "Supply Chain Issues" are not random but are primarily traceable to a single unreliable supplier. The data clearly shows that 'Sheesham Crafts Inc.' is a bottleneck, with an average delay of 5.5 days. This directly impacts the shop's ability to produce furniture and fulfill customer orders on time, creating a single point of failure that damages customer satisfaction and operational efficiency.

Strategic Recommendations

1. Solution for Problem 1: "Stock shortage during festive months"

- **Recommendation: Implement a Data-Driven Seasonal Inventory Plan.**
    - **Specific:** Proactively increase the procurement of raw materials for the top 10 best-selling products (identified in the Product Profitability Analysis, Figure 3) by 30% in anticipation of the forecasted 32.6% growth in peak season demand.
    - **Measurable:** Success will be measured by a 95% in-stock rate for these top 10 products during the peak season (October-December).
    - **Achievable:** This is achievable by placing supplier orders based on the forecast, not on the previous month's sales.
    - **Relevant:** This directly prevents stockouts of popular items during the busiest sales periods, capturing previously lost revenue.
    - **Time-bound:** Begin placing these bulk orders by **August 15, 2025**, to ensure all materials arrive and production is complete before the October 2025 sales surge begins.

2. Solution for Problem 2: "Underperforming Product Designs"

- **Recommendation: Implement a Two-Stage "Bundle & Clear" Portfolio Strategy.**
    - **Specific (Stage 1 - Bundle & Upsell):** Based on the profitability analysis (Figure 3), identify the top 5 underperforming products (e.g., 'Wooden Rocking Chair', 'Small Bookshelf'). Immediately create "Package Deals" that bundle these items with "Star Products." For example:
        - Offer a "Bedroom Set" (King Size Bed + 3-Door Wardrobe + Small Bookshelf at 50% off).
        - Offer a "Living Room Package" (Upholstered Sofa + Wooden Rocking Chair at 60% off). This strategy uses the popularity of star products to

move less desirable stock, increasing the total value of the sale while clearing inventory.

- **Specific (Stage 2 - Clearance):** For any underperforming items that remain unsold after 90 days of the bundle strategy, implement a final "Clearance Sale" with a 20-30% discount to liquidate the remaining stock.
- **Measurable:** The goal is to clear 75% of the identified underperforming stock (in units) within 120 days (90 days for bundling, 30 for clearance).
- **Achievable:** This is achievable by leveraging the sales velocity of popular items and then using a targeted discount as a final measure.
- **Relevant:** This directly solves the problem by converting stagnant, underperforming assets into liquid cash flow. This freed-up capital and showroom space can then be reinvested in high-demand, high-margin products like 'Custom' and 'Bed' categories.
- **Time-bound:** Initiate Stage 1 (Bundling) immediately, starting **November 10, 2025**. Begin Stage 2 (Clearance Sale) on **February 10, 2026**, for any remaining stock.

3. Solution for Problem 3: "Supply Chain Issues"

- **Recommendation: Implement a Strategic Supplier Diversification Policy to Build Resilience.**
  - **Specific:** The analysis (Figure 5) revealed that a single supplier ('Sheesham Crafts Inc.') is a major bottleneck. However, the root problem is a reliance on single suppliers for *all* critical materials. The owner must adopt a policy of **maintaining at least two qualified suppliers for each key material category** (e.g., two for Sheesham wood, two for Teak wood, two for fabrics, two for hardware).
    - **Immediate Action:** Shift 50% of 'Sheesham Crafts Inc.' orders to a new, pre-qualified supplier.
    - **Long-Term Action:** Actively source and qualify backup suppliers for 'Prayag Timbers', 'Royal Fabrics', and 'Bharat Hardware', even though they are currently reliable.

Supplier Category	Business Name	Location (Prayagraj)	Rating (as per web results)
Timber & Wood	Rajesh Timber Store	Mutthi Ganj	5.0 / 5.0
	Ganesh Timber Traders	Mutthi Ganj	4.7 / 5.0
	Anjani Traders	Malviya Nagar	4.6 / 5.0
Plywood & Boards	Prayag Plywood	(Not specified)	5.0 / 5.0

	Rahman Traders	Kareli	4.9 / 5.0
	Diamond Ply House	Mutthi Ganj	4.1 / 5.0
Upholstery & Fabrics	Welhome	Civil Lines	4.8 / 5.0
	Ramji Lal Ratan Prakash	(Not specified)	4.7 / 5.0
	Pradeep Traders	(Not specified)	4.4 / 5.0
Furniture Hardware	Bharat Hardware Stores	Naini	5.0 / 5.0
	Salamat Enterprises	Johnstonganj	4.8 / 5.0
	Aditya Plywood Hardware	Mutthi Ganj	5.0 / 5.0

Table 4: Alternative Suppliers in the Prayagraj Region

Table 4 above presents a list of highly-rated raw material suppliers in Prayagraj, which the owner of Good Luck Furniture may utilize as an alternative source for goods by placing small trial orders to assess product quality and supplier reliability before committing to a larger contract.

- **Measurable:** The primary goal is to have a list of at least two approved suppliers for 80% of raw material categories within 6 months. A secondary metric is to reduce the overall average delivery delay for *all* materials to under 2 days.
- **Achievable:** This is achievable for a business in Prayagraj by leveraging local industry contacts (like the ones listed above) to identify and test new suppliers with small trial orders.
- **Relevant:** This recommendation directly solves the "Supply Chain Issues" problem at its core. It builds resilience, eliminates single points of failure, and ensures that a problem with any *one* supplier will not halt the entire production line.
- **Time-bound:** Begin the search for and qualification of new suppliers **immediately (November 2025)**. Aim to have the new diversified supplier list and policy fully implemented within **6 months (by May 2026)**.

Expected Potential Impact and Benefits of Implementation

The implementation of the three proposed data-driven recommendations is projected to have a direct, substantial, and positive impact on Good Luck Furniture's profitability, operational efficiency, and long-term stability. The benefits of each recommendation are quantified below, moving the business from a reactive state to a proactive, data-driven operation.

1. **Seasonal Inventory plan**
    - **Expected Business Impact : Eliminates stockouts** of popular, high-profit items during the critical festive and wedding seasons.
    - **Projected Financial : Captures the full forecasted 32.6% profit growth** (an estimated **₹41,000 in additional profit**) during the next peak season that would have otherwise been lost to competitors. This directly boosts revenue and enhances customer satisfaction by ensuring product availability.
2. **"Bundle & Clear" Portfolio Strategy**
    - **Expected Business Impact : Converts dead stock** (underperforming products) into liquid cash flow and frees up valuable, finite showroom floor space.
    - **Projected Financial : Unlocks an estimated ₹75,000 - ₹100,000 in capital** currently tied up in the cost of unsold inventory. This new liquidity can be immediately reinvested in high-demand, high-margin "Star Products" like the 'Custom' and 'Bed' categories, improving overall cash flow and inventory turnover.
3. **Supplier Diversification**
    - **Expected Business Impact :Builds supply chain resilience** by removing the "Sheesham Crafts Inc." bottleneck (5.5-day average delay) and ending the high-risk dependency on single suppliers for critical materials.
    - **Projected Financial : Reduces customer order fulfillment delays by an average of 3-5 business days.** This directly enhances brand reputation and improves customer satisfaction. Operationally, it creates a more stable, predictable, and efficient production schedule, reducing stress and potential overtime costs.