

OPTIMISING FURNITURE SALES POTENTIAL



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Date : 6 October, 2025

Contents

1.	Declaration Statement	2
2.	Executive Summary	3
3.	Proof of Data Originality	3
4.	Metadata and Descriptive Statistics	4
4.1.	Metadata	
4.2.	Dataset Specifications	
4.3.	Descriptive Statistics	
5.	Analysis process and methods	6
5.1.	Analysis 1: Seasonal Profit Trend	
5.2.	Analysis 2: Profit Contribution by Category	
5.3.	Analysis 3: Product Profitability Analysis	
5.4.	Analysis 4: Price vs. Profit Analysis	
6.	Results and Findings	9

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.

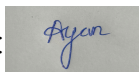
Additionally, I affirm that all procedures employed for the purpose of data collection and analysis have been duly explained in this report. The outcomes and inferences derived from the data are an accurate depiction of the findings acquired through thorough analytical procedures.

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

This mid-term report presents the initial findings of data-driven analysis of Good Luck Furniture, a small scale furniture business in Prayagraj, Uttar Pradesh, known for its handcrafted and ready-made wooden furniture. While the business has a strong reputation for quality, it faces several operational challenges that limit its sales potential like **Stock Shortage during Festive Months, Underperforming Product Designs and Supply Chain Issues.**

By analyzing historical sales from data June 2023 to June 2025, this project aims to address key business challenges, including seasonal stock shortages and a portfolio of underperforming products.

The initial analysis confirms a highly predictable and significant surge in demand during the post-monsoon festive and wedding seasons, where monthly profits can increase by over tenfold. Furthermore, profitability analysis reveals that over 60 % of the business's profit is generated by just two categories: 'Bed' and 'Custom' furniture. Conversely, several products have been identified as underperformers, contributing minimally to overall profitability.

These data-driven insights establish a robust basis for formulating targeted strategies aimed at optimizing inventory, refining the product portfolio, and fostering sustained business growth.

Proof of Data Originality

Business Information

- **Name:** Good Luck Furniture
- **Owner:** Abad Hussain
- **Location:** Rajroopur, Prayagraj
- **Services:** Hand crafted and Ready-made

Evidence

- **Drive link:**[Proof of originality](#)
- **Dataset:** [Dataset csv file](#)
- **Video Interview:**[Interview with owner](#)
- **Business Photo:**[bed](#), [sofa](#), [Shop from inside](#), [shop from outside](#), [Workshop](#)
- **Official Letter:**[letter from Good Luck Furniture](#)

Metadata and Descriptive Statistics

Metadata defines our dataset structure and provides context for analysis. This information ensures data quality and establishes the foundation for reliable business insights. The following table describes the structure of the sales dataset used for this analysis.

Field Name	Data Type	Description
OrderID	Text	A unique identifier for each sales transaction.
OrderDate	Date	The date on which the transaction occurred.
ProductName	Text	The name of the specific furniture item sold.
Category	Text	The general category of furniture.
Quantity	Number	The number of units sold in the transaction.
CostPrice	Currency	The cost of the product.
SellingPrice	Currency	The selling price of the product.
TotalPrice	Currency	Total Price of the product (SellingPrice * quantity)
Profit	Currency	The profit generated from the sale of products.

Justification: Analyse historical sales data to find patterns in stock shortage during the peak seasons.

Dataset Specifications

- **Format:** CSV/Excel
- **Period:** 75 transactions
- **Currency:** Indian Rupees(₹)
- **Source:** Historical sales data

Descriptive Statistics

A summary of financial data provides a baseline understanding of the business's performance over the two-year period.

Business Performance Summary:

Metric	Value
Total Items Sold	78
Total Revenue	₹3,524,700
Minimum Profit	₹1,500
Maximum Profit	₹50,000
Total Profit	₹739,000
Average Profit	₹9,853
Average Profit per Sale	20.97 %

Justification: This table provides a clear and concise overview of the business's financial health and these indicators are essential for contextualizing the analysis.

Profit Contribution By Furniture Category:

Category	Quantity	TotalPrice	Profit Margin
Bed	23	₹10,88,000	22.43 %
Chair	9	₹1,03,500	21.26 %
Custom	10	₹9,38,300	24.25 %
Sofa	11	₹5,65,500	16.89 %
Table	16	₹4,26,400	17.82 %
Wardrobe	9	₹4,03,000	18.36 %

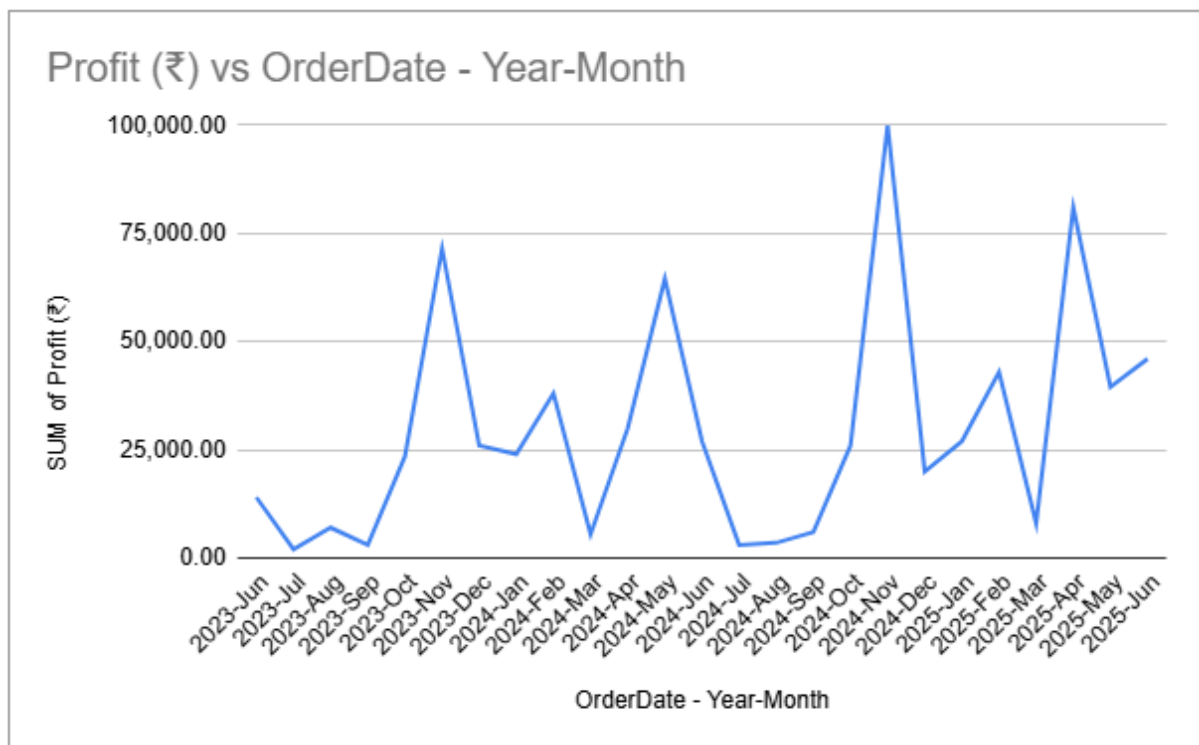
Justification: The table provides a crucial strategic overview, presenting a summary of each furniture category's performance and its contribution to profit.

Analysis Process & Methods

Excel-based analyses were conducted to investigate the business's core challenges.

Analysis 1: Seasonal Profit Trend

To validate the issue of seasonal demand, the total profit for each month was calculated and plotted over time.



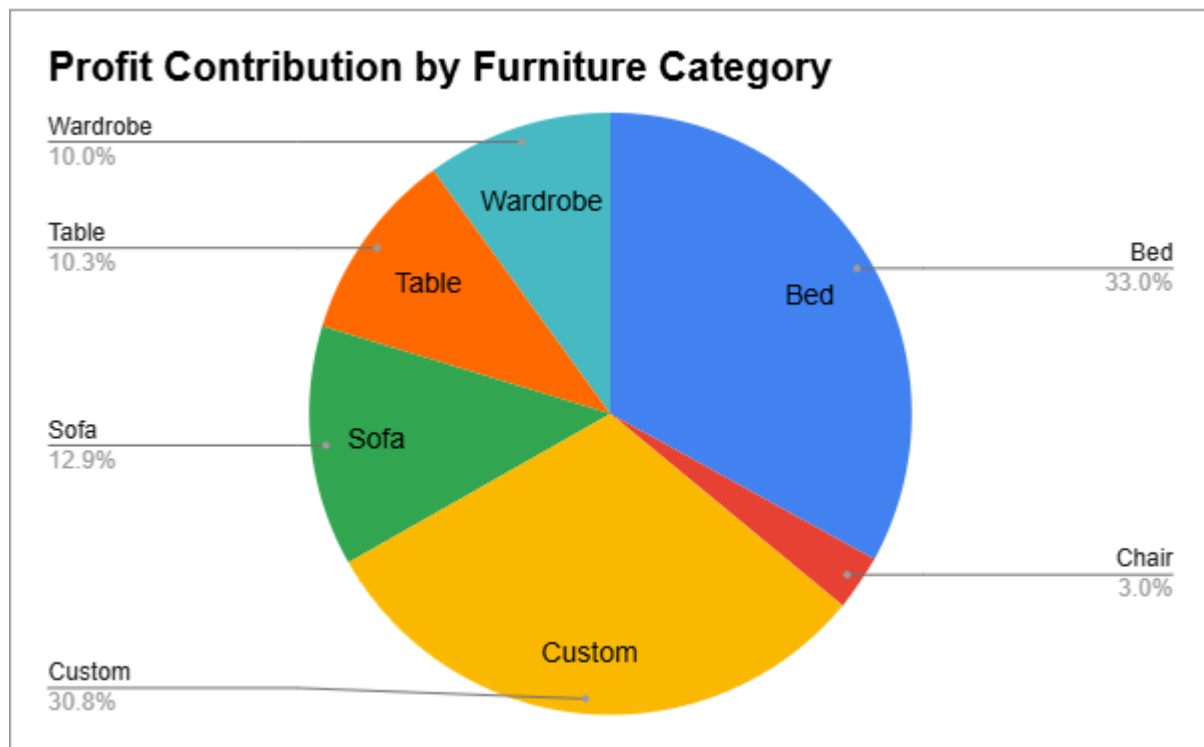
Monthly Profit Trend (June 2023 - June 2025)

Explanation: The monthly profit trend reveals a highly volatile but predictable seasonal pattern. There are clear and significant profit spikes corresponding to the post-monsoon festive and 'Lagan' or wedding season in the Prayagraj region. For instance, in 2024, profits peaked at nearly ₹100,000 in November, a more than tenfold increase from the monsoon-period low of less than ₹5,000 in September. This surge clearly indicates the need for a seasonal inventory strategy to prevent stockouts during periods of high demand.

Justification: This predictable hike in demand is the root cause of the **Stock Shortage** identified in the project proposal, as the profit increases by **1000%** from the lows. If Good Luck Furniture operates with a standard inventory level throughout the year, it will be unprepared for this massive increase in demand.

Analysis 2: Profit Contribution by Category

To understand the overall business structure, the total profit was grouped by furniture category.



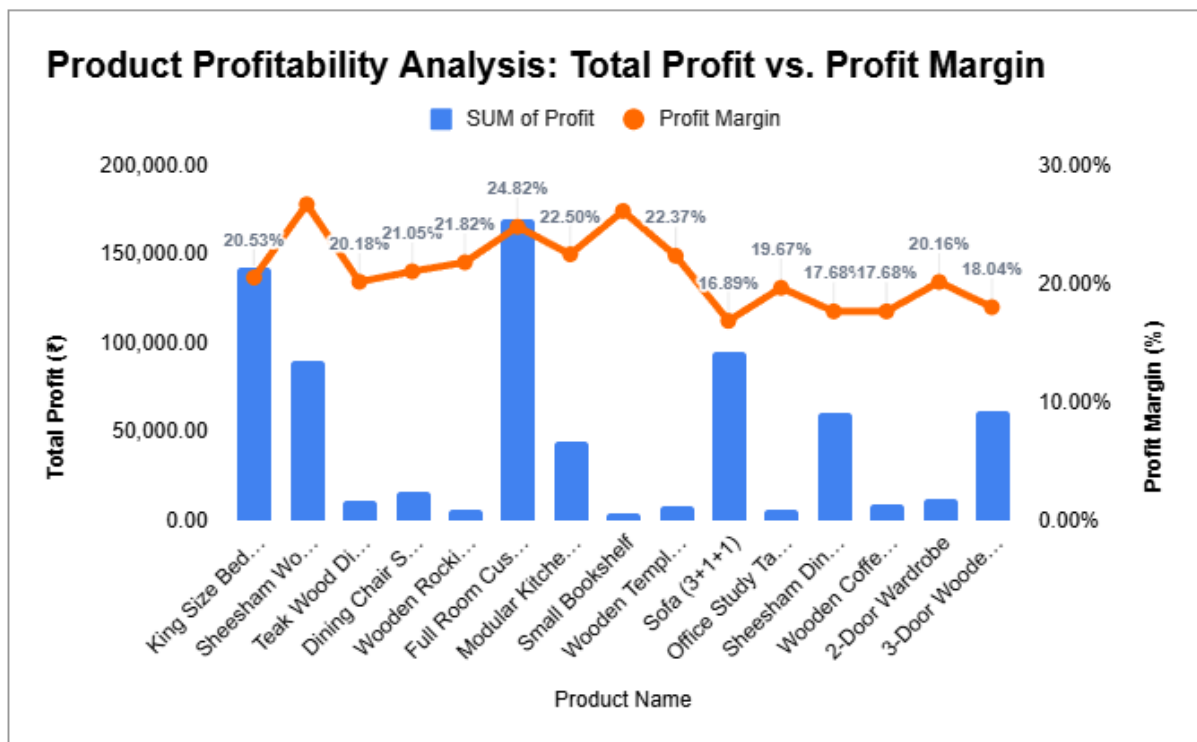
Profit Contribution by Furniture Category

Explanation: As shown in the figure, the business's profitability is heavily concentrated in a few key areas. The '**Bed**' (33.0%) and '**Custom**' (30.8%) categories together account for over **63%** of the total profit. In contrast, the '**Chair**' category contributes only **3.0%**. This high-level overview indicates which product categories are the core drivers of the business and which may be underperforming or represent a smaller niche market.

Justification: The chart offers a comprehensive overview of the business, highlighting how the total profit is divided among different business segments. It gives us knowledge about the overperforming and underperforming categories.

Analysis 3: Product Profitability Analysis

A deeper analysis was conducted to evaluate the performance of each individual product.



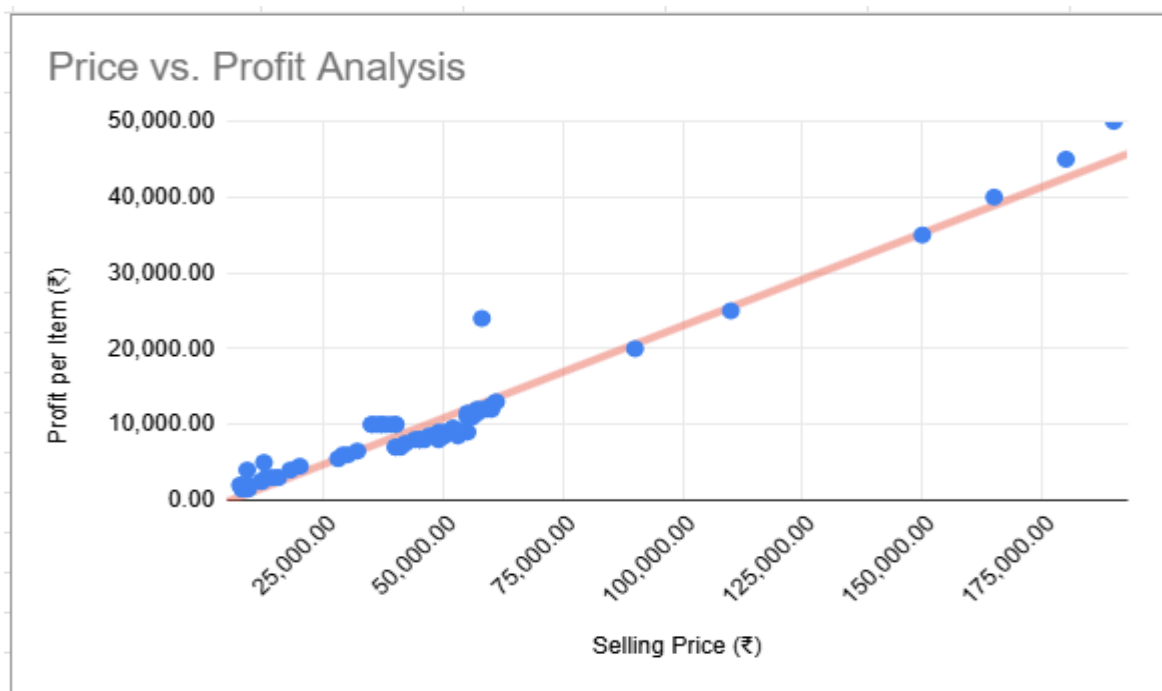
Total Profit vs. Profit Margin

Explanation: The chart provides a detailed view of product performance. It identifies "star products" like the 'Full Room Custom Set,' which generates both the highest total profit and a strong profit margin (**24.8%**). It also highlights "workhorse" products, such as the 'King Size Bed with Storage,' which generate significant total profit through volume but have a lower margin (**20.5%**). Most importantly, this analysis clearly identifies "underperforming products," such as the "Wooden Rocking Chair" and "Small Bookshelf," which contribute minimally to both total profit and margin.

Justification: This chart allows us for the immediate identification of products that are high-volume versus those that are high-efficiency. It provides a strong basis for making strategic decisions about which products to promote, re-price, or potentially discontinue.

Analysis 4: Price vs. Profit Analysis

A scatter plot was used to analyze the relationship between the selling price of an item and the profit it generates.



Price vs. Profit Analysis

Explanation: The scatter plot reveals a strong positive correlation between an item's selling price and the profit it generates, as indicated by the upward trend of the data points. This confirms a healthy pricing strategy where higher-value items are also the most profitable. The data points cluster into two main groups: a high-volume cluster of items priced under ₹60,000 and a high-value cluster of items (mostly custom pieces) priced above ₹90,000.

Justification: This visualization instantly identifies the nature of the business's pricing strategy and spot any outliers that deviate from the general trend.

Results and Findings

- **Confirmation of Extreme Seasonality:** The data shows the business having a dramatic, predictable sales surge in festive and wedding seasons (**October to December, April to June**). Profits during these months increase by more than **1000%** to the monsoon lows. This directly confirms the critical risk of stock shortages if inventory is not managed properly.
- **Highly Concentrated Profitability:** The business's finances are heavily dependent on a few key areas. The '**Bed**' and '**Custom**' furniture categories together contribute over **63%** of the total profit. This highlights the strategic importance of these categories and suggests they should be the primary focus for marketing and inventory investment.

- **Identification of Underperforming Products:** The analysis clearly identifies a set of underperforming products, such as the '**Wooden Rocking Chair**' and '**Small Bookshelf**', which contribute around **3.0%** (negligible) profit. This validates the problem and provides a data-driven basis for making decisions about product lifecycle management.