# Optimizing Inventory and Sales Management for Rishabh Enterprises: A Comprehensive Approach

**A Final report for the BDM capstone Project**

Submitted by

Name: ASHUTOSH UTSAV

Roll number: 22F2001659


IITM Online BS Degree Program,

Indian Institute of Technology, Madras, Chennai

Tamil Nadu, India, 600036

## Contents

# EXECUTIVE SUMMARY

This report is an analysis of Rishabh Enterprises inventory and sales performance using various tools to improve operational efficiency and profitability. The analysis starts with a price distribution study which shows that most of the products are below ₹500, which is in line with the budget conscious customer base of the store. This is a clear indication that the store should have a product mix that caters to the customer's financial preference so the store can be competitive in pricing.

A total sales over time analysis of sales data for 4 months shows that there is huge volatility in daily sales which is mainly due to external factors like local events and customer traffic from nearby villages. This volatility demands a dynamic inventory and staffing strategy to accommodate the demand fluctuations. The top selling products like "Kadhai medium" and "Patila 2L" also indicate the revenue drivers of the business and hence inventory management for these products should be prioritized to avoid stockouts and lost sales.

The report also has sales forecasting analysis using regression models which has shown an accuracy of 0.85. This predictive capability will help in better inventory optimization and resource allocation so the store is ready to meet the future demand. The ABC analysis categorizes products based on revenue contribution and Category A products are the most critical for the store's success. The product performance analysis has segmented the products into 4 categories based on revenue and sales volume which will help in inventory management.

And finally the report has reorder point and safety stock calculations so Rishabh Enterprises has enough stock to meet customer demand without overstocking. This overall inventory management approach will help the store to optimize, sell more and be profitable. By using these insights Rishabh Enterprises can serve the customer better and maximize its revenue.

# DETAILED EXPLANATION OF ANALYSIS PROCESS/METHOD

## 1 Data Collection and Cleaning

The first process is the data collection process. Data has been collected for over 4 months, that is from January 2024 to April 2024 and then after collecting it, the digitization process occurs in which this data converts from the paper record to digital form. Here, Mr. Jitendra Kumar, the owner of Rishabh Enterprises, has been proven to be a helpful force with his inputs in the presentation of the report which made the data analysis accurate and efficient.

**Data Fields -** The key fields in the digitized dataset include ‘Date’, ‘Product Name’, ‘Price’ ‘Quantity Sold’ and ‘Total’

Then, the data collected was cleaned for accuracy and dependability. The data were then analyzed for common shortcomings, such as missing values, incorrect entries, or column mismatches. In cases where missing values were minimal and non-crucial, those rows were removed from the dataset. When a large missing value chunk was found in the data, Mr. Jitendra Kumar helped to trace back the data that was found, and for the values which were unable to be located, imputation was used, in which possible values were estimated based on surrounding data.

In addition, data has also been standardized for those very same product names that are similar and confusing, like 'Kadhai' and 'Kadai' or 'Karahi'—these are variant names for the same product. So data standardization is very necessary for a clean and good report with quality data.

## 2. Elementary Data Analysis

In elementary data analysis basic descriptive statistics has been done to understand the central tendency and distribution of the dataset.

| | Count | Mean | std | min | 25% | 50% | 75% | max |
|---|---|---|---|---|---|---|---|---|
| Price | 3298.00 | 187.21 | 283.24 | 8.00 | 35.00 | 100.00 | 200.00 | 3200.00 |
| Q.sold | 3298.00 | 1.93 | 0.82 | 1.00 | 1.00 | 2.00 | 3.00 | 3.00 |
| Total | 3298.00 | 303.21 | 356.59 | 8.00 | 60.00 | 160.00 | 450.00 | 3200.00 |

**Fig1 - Descriptive Statistics of the data**

The average product price was 187.21, with prices ranging from 8.00 to 3200.00. The median price (50th percentile) was 100.00. For quantity sold, the average was 1.93 units, with quantities ranging from 1 to 3 units per transaction, and the median was 2 units. The total sales value had a mean of 303.21, with a minimum of 8.00 and a maximum of 3200.00. The graph illustrates how total price, quantity sold, and price are distributed across various percentiles.

## 2.1 Price Distribution

A price distribution graph shows products clustering around a certain price point, where most products are concentrated. This clustering means the pricing strategy is designed to attract a wide range of customers by offering multiple products in the same price range. By looking at this clustering one can create and optimize inventory management so popular products are well stocked and match customer demand, and improve efficiency and customer satisfaction.

## 2.2 Total Sales Over Time

The total sales over time show important peaks, troughs and patterns that any store needs to know to optimize their operations. By understanding these patterns stores can make informed decisions on when to increase or decrease inventory, so popular items are always in stock during peak periods and not overstocked during slow periods. They can also run more targeted marketing campaigns, aligning promotions with periods of high customer activity. Properly allocating staff based on these patterns means the store is staffed correctly during busy times, improving customer service and reducing wait times. Overall using sales patterns

like this helps with operational efficiency, reduces costs and increases customer satisfaction by making sure the store is always ready for demand.

### 2.3 Sales By Top Selling Products

Knowing best sellers is key to inventory management, so one can stock the things that make the most revenue. By focusing on those top sellers, shop can ensure high demand products are always in stock, reducing stock outs and lost sales. Managing underperforming products frees up space and resources for more profitable products. This optimizes the product mix, demand forecasting and reduces overstocking or understocking. Ultimately it means more sales, cash flow and customer satisfaction when the right products are in stock at the right time.

**In summary**, The basic exploratory data analysis of Rishabh Enterprises can show how the business can create and manage its inventory. It will show which products are selling more and which are less in demand. With this business can focus on creating a better customer experience. We move on to advanced analysis to dig out more hidden insights that will help business to optimize inventory and overall customer satisfaction.

## 3. Advanced Analysis

The advanced analysis section will build on the insights gained from the basic EDA, delving into more sophisticated techniques to provide deeper insights and actionable recommendations for Rishabh Enterprises. The focus will be on sales forecasting and inventory optimization.

### 3.1. Sales Forecasting with Regression Analysis

Forecasting sales with regression analysis allows one to predict future sales trends by modeling time and sales data. This helps business optimize stock levels so they have popular products when demand is high and not overstocking on slow sellers. It also helps with resource allocation such as staffing and marketing by understanding when sales periods are

high. Ultimately forecasting with regression analysis gives the insights to make more informed and strategic decisions so one can run more efficiently and profitably.

### 3.2. ABC Analysis

ABC analysis categorizes inventory into three segments—A, B, and C—based on their contribution to overall sales. This method enables businesses to focus on high-value items (Category A) that drive the most revenue, while managing lower-value items (Categories B and C) with less intensity. By prioritizing resources and attention on the most critical inventory, ABC analysis helps optimize stock levels, reduce carrying costs, and ensure that the most impactful products are always available. This segmentation equips a business with the ability to allocate resources more efficiently, improve cash flow, and enhance overall inventory management strategies. Also we can find which are the products that are selling more or have a high customer demand. Based on that information we can add more variety of similar products of category A that may benefit the whole business.

### 3.3. Product Performance Analysis

Product performance analysis gives a breakdown of each product's contribution to overall sales. By looking at metrics like total revenue and sales volume, this analysis will show top performing products to focus on and underperforming products to relook. Knowing what products drive business will help make more strategic decisions on inventory management, marketing and product offerings. Ultimately product performance analysis can help one to optimize product mix, increase profitability and meet customer demand. In this analysis we can categorize products into four parts which are 'High revenue and high quantity sell', 'High revenue and low quantity sell', 'Low revenue and high quantity sell' and 'Low revenue and low quantity sell'. This can provide ideas on which products to focus more on inventory and how to manage inventory efficiently.

### 3.4. Reorder Point and Safety Stock Calculation

Reorder point and safety stock calculation helps to maintain optimal inventory levels by determining when to reorder and how much extra stock to keep. By considering lead time and demand variability this analysis prevents stock out and minimizes excess inventory. The result is a more efficient inventory management process which reduces carrying costs and improves cash flow. Also maintaining safety stock levels ensures customer demands are met

consistently and customer satisfaction and loyalty. This analysis gives a business the tools to maintain inventory balance, streamline operations and support growth. Discussion with Mr. Jitendra Kumar revealed that it takes five to seven days to get any product after placing an order. Hence seven days has been taken as lead time and the calculations have been performed henceforth.

# RESULTS AND FINDINGS

The analysis was divided into two phases. Firstly basic data analysis was performed, which provided essential recommendations for improving business strategies and achieving some essential improvements. However, Rishabh Enterprises' lacks a proper inventory system, with a lack of detailed insights into which products to stock. To tackle this, we moved on to an advanced analysis. This in-depth approach uncovered valuable details in the data, guiding the development of an optimized inventory system for the business. Specific product subcategories were identified that are thriving in the targeted area, allowing the business to focus on stocking these high-demand items.

## Findings from Price Distribution

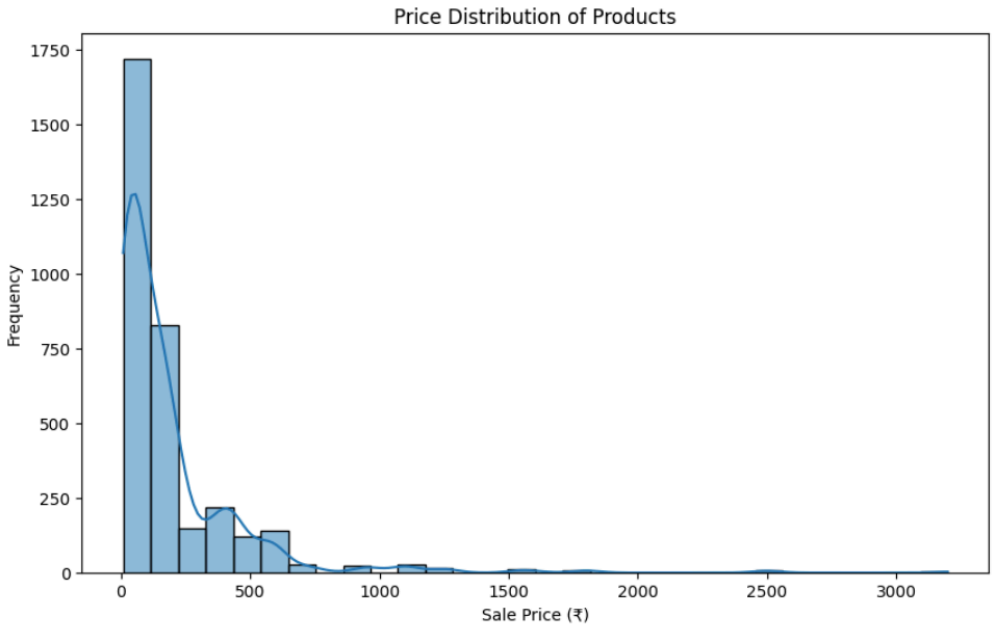


Fig 2 - Graph of Price Distribution

**Fig2 - Graph of Price Distribution**

From **Fig2** Price Distribution Graph it can be observed that most of the products are falling in lower price range especially under ₹500. This means the store has a customer base which prefers budget products. The steep drop in frequency as price increases means the targeted consumer base does not prefer to spend more on essentials. This means the store inventory is heavily skewed towards lower priced products which is in line with customer's purchase preference. This is very important for inventory management and to ensure the store continues to meet customer demand.

## Findings from Total Sales Over Time

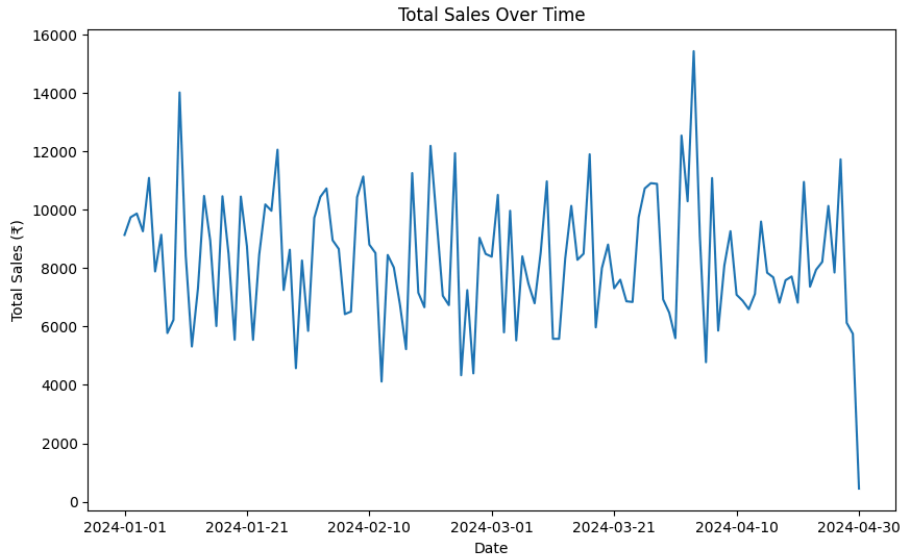


Fig3 - Graph of sales over time

From the **Fig3** which is a graph of total sales over a 4 month period from January 2024 to April 2024. The graph shows big fluctuations in daily sales so sales are very volatile. This volatility indicates the presence of weekends and festivals, but Mr. Jitendra Kumar, owner of the store suggests that the store attracts a lot of customers from surrounding villages which explains the volatility. The data shows big peaks in sales at certain times which means high demand periods. The high peaks are the opportunities to be capitalized. Analysis of total sales

over time shows the need of a dynamic inventory and staffing strategy to match the volatile sales.

## Findings from Sales By Top Selling Products

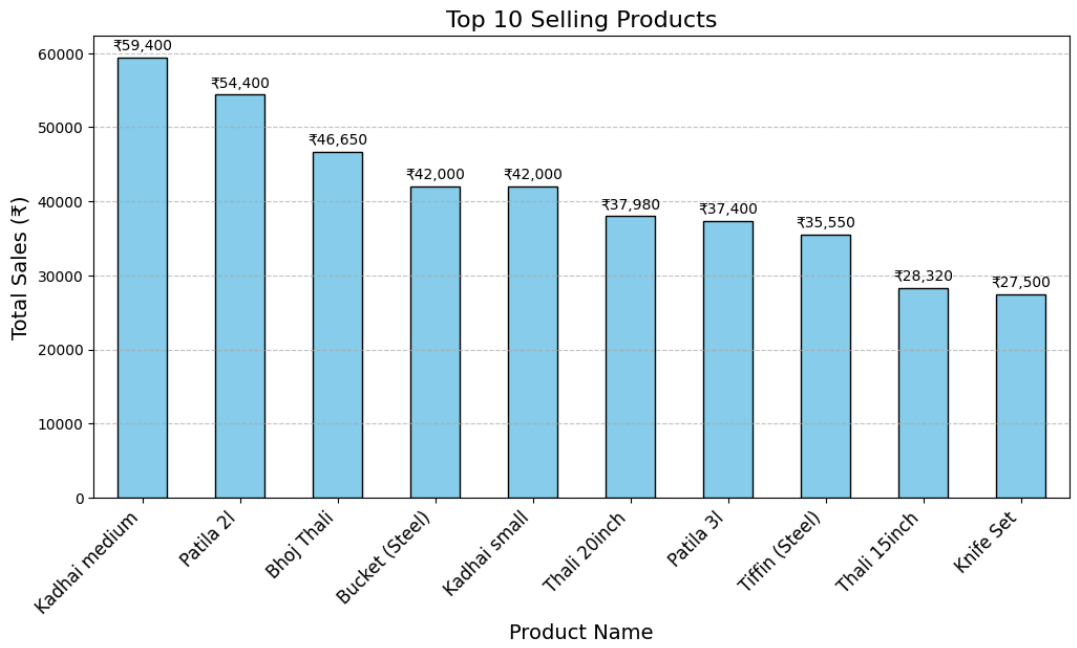

Fig 4 - Graph of Top Selling Products

From the **Fig4** which is a graph of top 10 selling products for Rishabh Enterprises into which products are generating maximum revenue for the store 'Kadhai medium,' 'Patila 2L,' and 'Bhoj Thali.' Such top products are the prime generators of revenue for the store. These items need to be maintained in inventory management for timely availability. The graph also shows a relatively balanced distribution among the top selling products, which indicates that the store revenue is not based solely on one single item.

## Findings from Sales Forecasting with Regression Analysis

After applying the Regression model on our dataset the following results and graphs generated.

The **R² Score** of 0.85

The **Mean Squared Error (MSE)** of 19,455.70

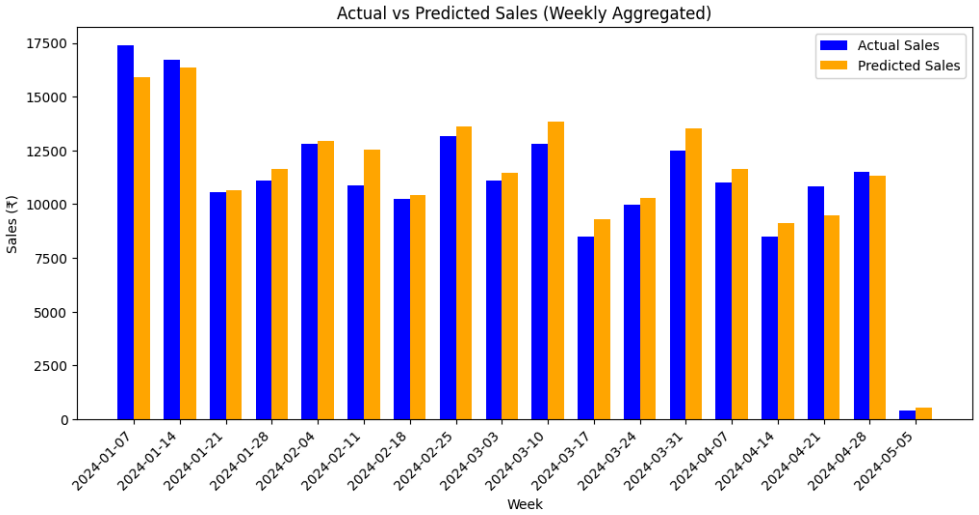


Fig 5 - Weekly Actual vs Predicted Sales Comparison

The **R² Score** of 0.85 means that the regression model explains approximately 85% of the variance in the sales data. This indicates that the regression model is capturing the underlying data and pattern.

The **Mean Squared Error (MSE)** of 19,455.70 reflects the average squared difference between the actual and predicted sales. While MSE values are context-dependent this relatively low value suggests that the model predictions are reasonably accurate.

The **Fig5** is comparing actual sales with the predicted sales on a weekly basis, which shows the model prediction is closely with the actual sales.With this information it can be observed that the regression model is accurate while predicting the future prediction. This analysis equips the business with the necessary information and demand for a better inventory optimisation.

## Findings from ABC Analysis

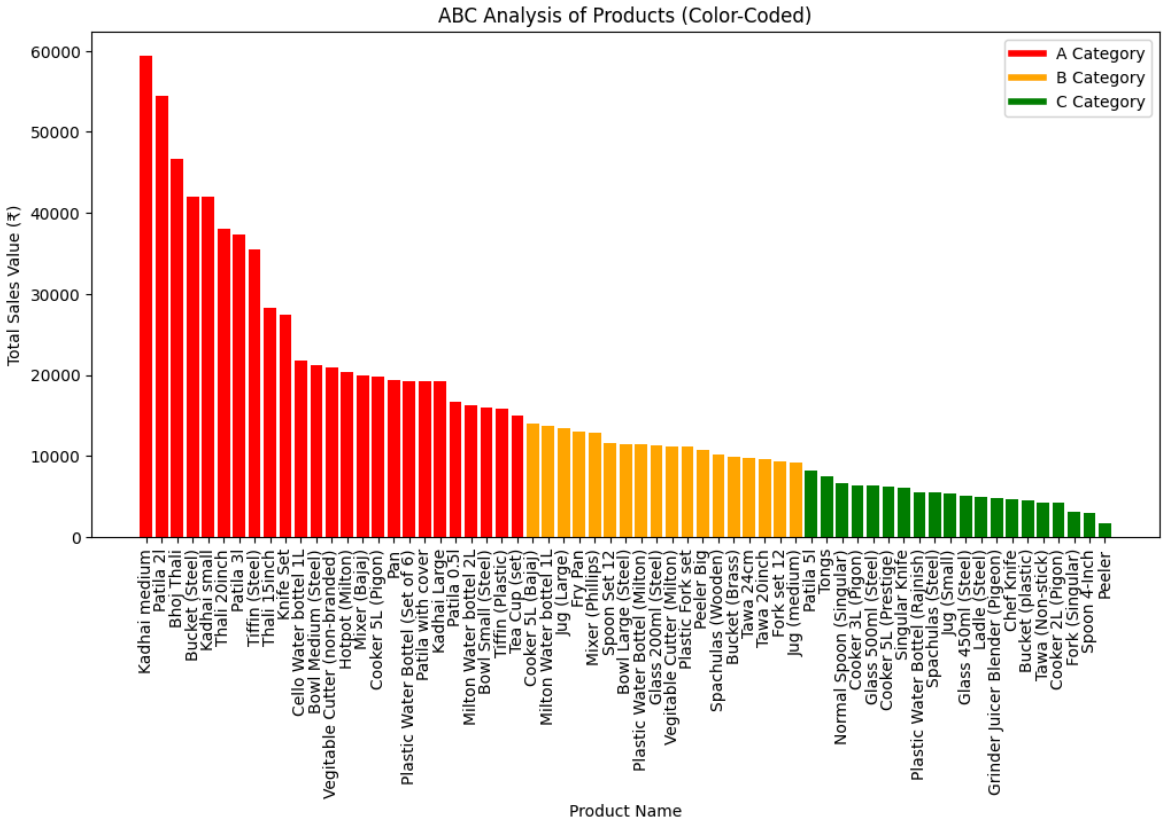


Fig 6 - ABC categorization of Products

The ABC analysis of products gives a clear picture of the products that are generating revenue for the shop. In **Fig 6**, it can be implied that some products in Category A, which are high-value items like “Kadhai medium,” “Patila 2L,” “Thali 20 Inch,” “Cello water Bottle 1L”, “Bowl,” “Tiffin,” and many more are generating a substantial chunk of revenue for Rishabh Enterprises. These are the most critical products for the business and are driving the majority of revenue.

Category B products contribute around 15-20% of total sales. They are important but not as critical as Category A. Here, products like “Cooker 5L,” “Mixer,” and “Vegetable Cutter” are selling in this category. For example, the mixer is a high-priced product while not being sold too much, but one cannot afford to lose a sale of the mixer because it's a high-priced product,

so creating an inventory where one does not face either overstock or missed sales in Category B.

Under Category C, the products contribute the remaining 5-10% of sales value. These are the least critical items in terms of revenue, including products like “Peeler,” “Spoon,” and “Cooker 5L”. It can also be observed that products like “Spoon” or “Peeler” do not generate a good amount of revenue, but they are in demand, and targeted consumers prefer these. However the consumer prefers products like “Cooker 3L” over “Cooker 5L,” which tells us that they prefer not to spend extra money. The inventory for Category C needs to be curated with this in mind.

## Findings from Product Performance Analysis

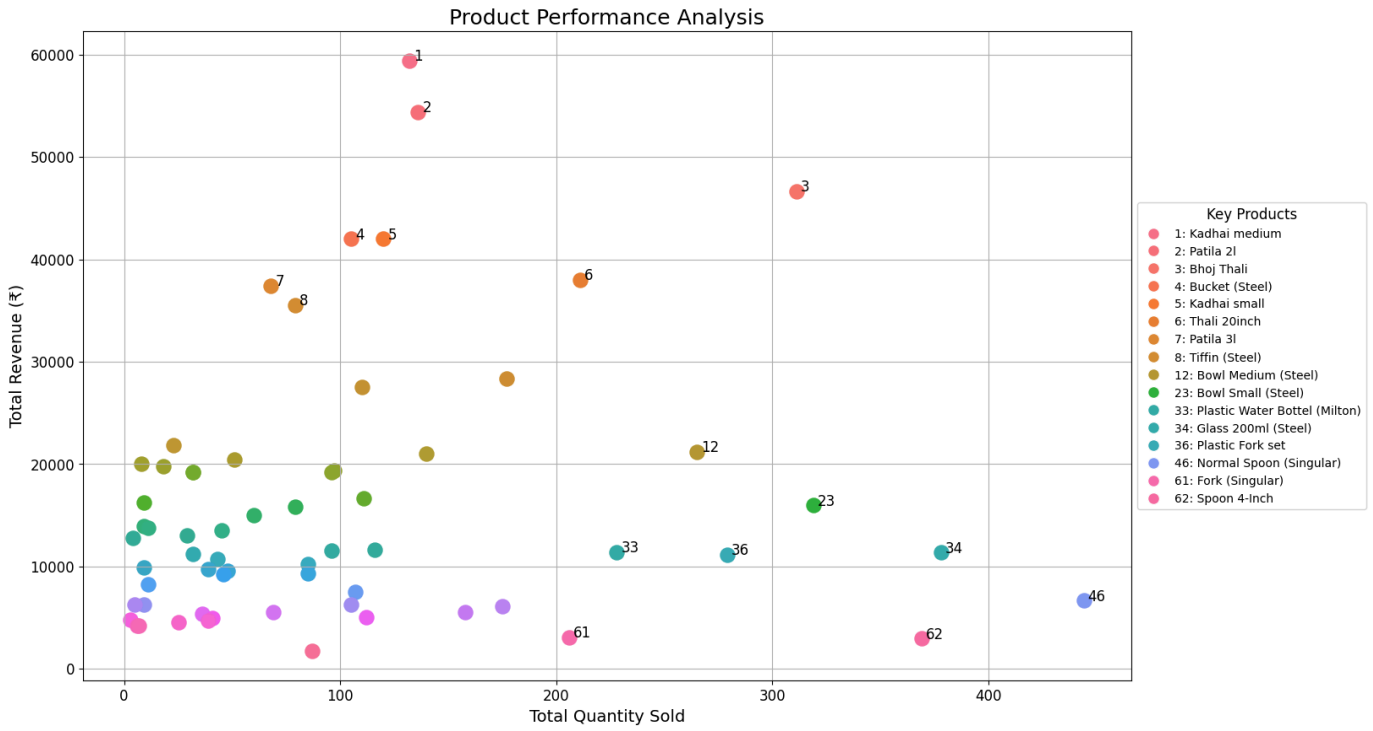


Fig 7 - Product Performance Analysis

| Product name | Total Revenue (₹) | Total Quantity Sold |
|---|---|---|
| Kadhai medium | 59400 | 132 |
| Patila 2L | 54400 | 136 |
| Bhoj Thali | 46650 | 311 |
| Thali 20 inch | 37980 | 211 |
| Bowl medium | 21200 | 265 |
| Vegitable cutter | 21000 | 140 |

**Fig8 – HRHQ**

| Product name | Total Revenue (₹) | Total Quantity Sold |
|---|---|---|
| Bucket (Steel) | 42000 | 105 |
| Kadhai small | 42000 | 120 |
| Patila 3l | 37400 | 68 |
| Tiffin (Steel) | 35550 | 79 |
| Knife Set | 21200 | 110 |
| Cello Waterbottel 1L | 21850 | 23 |

**Fig9 – HRLQ**

| Product name | Total Revenue (₹) | Total Quantity Sold |
|---|---|---|
| Bowl Small (Steel) | 15950 | 319 |
| Plastic Water Bottel | 11400 | 228 |
| Glass 200ml (Steel) | 11340 | 378 |
| Plastic Fork set | 11160 | 279 |
| Singular Knife | 6125 | 175 |
| Fork (Singular) | 3090 | 206 |

**Fig10 – LRHQ**

| Product name | Total Revenue (₹) | Total Quantity Sold |
|---|---|---|
| Peeler | 1740 | 87 |
| Cooker 2L (Pigon) | 4200 | 7 |
| Chef Knife | 4680 | 39 |
| Bucket (plastic) | 4500 | 25 |
| Cooker 5L (Prestige) | 6250 | 5 |
| Jug (medium) | 9200 | 46 |

**Fig11 – LRLQ**

The product performance analysis has categorized our products into four categories:

1. **High Revenue and High Quantity (Fig8 - HRHQ)** - These products are the core generators of revenue for Rishabh Enterprises. These are the products that sell the most and generate a lot of revenue for the shop.
2. **High Revenue and Low Quantity (Fig9 - HRLQ)** - These products generate a good amount of revenue but do not attract a lot of customers. These products may have higher profit margins due to their high pricing.
3. **Low Revenue and High Quantity (Fig10 - LRHQ)** - These products are sold in large numbers but do not generate a lot of revenue, indicating that they are lower-priced products, but people buy them frequently.
4. **Low Revenue and Low Quantity (Fig11 - LRLQ)** - These products contribute the least to overall revenue and are not sold frequently. These items may be new products or products that customers from that specific area do not buy often.

The product performance graph **Fig7** highlights all the products on a graph with the number of sales and the amount of revenue they generate, which is crucial for Rishabh Enterprises to optimize inventory.

## Findings from Reorder Point and Safety Stock Calculation

| Product Name | Average Daily Demand | Std Dev of Demand | Safety Stock | Reorder Point |
|---|---|---|---|---|
| Normal Spoon (Singular) | 4.27 | 2.85 | 12.46 | 42.34 |
| Glass 200ml (Steel) | 3.82 | 2.56 | 11.2 | 37.92 |
| Spoon 4-Inch | 3.69 | 2.29 | 10.02 | 35.85 |
| Bhoj Thali | 3.66 | 2.13 | 9.3 | 34.91 |
| Bowl Small (Steel) | 3.43 | 2.0 | 8.74 | 32.75 |
| Bowl Medium (Steel) | 3.44 | 1.96 | 8.57 | 32.66 |
| Plastic Fork set | 3.28 | 2.05 | 8.95 | 31.93 |
| Fork (Singular) | 3.03 | 1.89 | 8.26 | 29.47 |
| Plastic Water Bottel (Rajnish) | 2.87 | 1.98 | 8.65 | 28.76 |
| Plastic Water Bottel (Milton) | 2.96 | 1.81 | 7.9 | 28.63 |
| Singular Knife | 2.87 | 1.86 | 8.11 | 28.19 |
| Thali 20inch | 2.97 | 1.62 | 7.08 | 27.88 |
| Patila 0.5l | 2.71 | 1.54 | 6.71 | 25.66 |
| Patila 2l | 2.67 | 1.4 | 6.09 | 24.76 |
| Spoon Set 12 | 2.58 | 1.45 | 6.35 | 24.39 |
| Peeler | 2.49 | 1.5 | 6.56 | 23.96 |
| Hotpot (Milton) | 2.43 | 1.57 | 6.84 | 23.84 |
| Thali 15inch | 2.57 | 1.34 | 5.87 | 23.83 |
| Jug (medium) | 2.42 | 1.57 | 6.87 | 23.82 |
| Glass 450ml (Steel) | 2.43 | 1.54 | 6.74 | 23.78 |
| Kadhai medium | 2.44 | 1.5 | 6.55 | 23.66 |
| Bucket (Steel) | 2.5 | 1.37 | 5.96 | 23.46 |
| Tiffin (Plastic) | 2.47 | 1.39 | 6.07 | 23.35 |
| Glass 500ml (Steel) | 2.44 | 1.4 | 6.12 | 23.22 |
| Tongs | 2.49 | 1.28 | 5.59 | 23.0 |
| Bowl Large (Steel) | 2.23 | 1.62 | 7.05 | 22.68 |
| Vegitable Cutter (non-branded) | 2.5 | 1.13 | 4.92 | 22.42 |
| Tiffin (Steel) | 2.32 | 1.36 | 5.96 | 22.22 |
| Spachulas (Wooden) | 2.43 | 1.14 | 5.0 | 22.0 |
| Fork set 12 | 2.3 | 1.22 | 5.33 | 21.41 |
| Kadhai small | 2.31 | 1.2 | 5.23 | 21.38 |
| Vegitable Cutter (Milton) | 2.29 | 1.2 | 5.26 | 21.26 |

**Fig12 - Table for Reorder point and safety stock**

Reorder point and safety stock are critical analyses used for inventory management to ensure that a business maintains sufficient stock levels to meet customer demand without overstocking or missing a sale due to stockout.

**Average daily demand** is the average number of units sold per day for each product. It is calculated by dividing the total demand for a product over a period by the number of days in that period. This is necessary for determining how much stock is needed on a daily basis to meet demand.

The **Standard deviation of demand** indicates the variability of a product in daily demand. A higher standard deviation suggests that the demand for the product is more unpredictable, while a lower standard deviation shows that demand does not fluctuate much.

**Safety stock** is the additional quantity of inventory kept on hand to protect against uncertain demand and supply. It acts as a buffer to prevent stockouts during uncertain surges or delays in supply. Safety stock is typically calculated using the standard deviation of demand, the lead time (how long it takes to receive new stock), and a service level factor (Z value) that reflects how confident you want to be that you won't run out of stock.

**Reorder point** is the inventory level at which Rishabh Enterprises should place a new order to avoid stockout. It's calculated by considering how much stock is needed to cover demand during the lead time plus the safety stock. seven days has been taken as lead time in the case of Rishabh Enterprises.

**Reorder Point = (Average Daily Demand × Lead Time) + Safety Stock**

These metrics work together to help manage inventory efficiently. This will ensure that the store does not miss a sale due to stockout or overstock of any product. For example, "Kadhai medium" has a daily demand of 2.44 units with a standard deviation of 1.5, leading to a safety stock of 6.55 and a reorder point of 23.66 units. This means the business should reorder "Kadhai medium" when the stock level falls to 23.66.

# INTERPRETATION OF RESULTS AND RECOMMENDATION

## Interpretation of Price Distribution Analysis:

The price distribution analysis highlights that the majority of products in the store are priced under ₹500, likely due to customer buying preferences. This pricing strategy appears to be effective, considering the store's location in a small district in Bihar called Sheohar. Customers in this area primarily seek essential items and are less inclined to spend more on

these products. The sharp decline in frequency as the price increases indicates that only a few customers are purchasing higher-priced items.

**Recommendation -**

- The main focus of the store should be on budget-friendly products. Continue to prioritize stocking more variety in lower-priced items that are in high demand. This may increase the overall footfall in the store because of the vast variety of low-budget products.
- While maintaining the current customer demand, the store can introduce a limited range of mid-range products to see the customer response. This can attract those customers who are willing to spend a little more on mid-range products.

## Interpretation and Recommendation of Total Sales Over Time

The total sales over time analysis over the four-month period reveals significant volatility in daily sales, which noticeable peaks and troughs. This volatility shows that sales are highly impacted by external factors such as day of week, local festivals, or seasonal events which are not good for the store.

**Recommendation -**

- Having a good inventory management system is important to accommodate this volatile sales pattern so the store can adjust to the fluctuating demand. During peak sales periods the store needs to make sure high demand products are in stock to avoid stockouts.
- Rishabh Enterprises can also run promotions to bring in more customers and convert them into loyal customers. This will increase sales and create a base of regular customers.
- The store should make more data driven decisions by keeping a track of their sales and some customer data. This will help them to optimize their inventory better.

## Interpretation and Recommendation of Sales By Top Selling Products

The Graph depicting top ten products shows what drives the major revenue for the store. Products like “Kadhai medium”, “Patila 2L” and “Bhoj Thali” are the top contributors to the sales. These are the bread and butter of the store and need to be available always for steady revenue. The sales being relatively balanced across these top products means the store is not too dependent on one product which reduces the risk and ensures a more stable income.

**Recommendation -**

- Top selling products should always be in stock as these are the products that generate most of the revenue. Any stock out in these products can be detrimental. The business needs to monitor stock levels for these products regularly and reorder in time.
- While the balanced distribution shows the business is not dependent on one or two products, the business should look to diversify this more and promote underperforming products.

## Interpretation and Recommendation of Sales Forecasting with Regression Analysis

The regression model used for sales forecasting shows a high degree of accuracy, as indicated by an $R^2$ score of 0.85, implying it explains 85% of the variance in the sales data. The relatively low Mean Squared Error (MSE) of 19,455.70 further suggests that the model's predictions are closely aligned with actual sales, as demonstrated in the weekly aggregated comparison of actual versus predicted sales in **Fig5**. This close alignment confirms that the regression model is a reliable tool for forecasting future sales.

**Recommendation -**

- Utilizing the model's prediction of sales prediction stores can maintain their inventory more efficiently , the store can ensure that it maintains stock levels, reducing the risk of stockouts or overstocking which can tie up capital and increase storage costs.
- The store can perform regression analysis regularly and evaluate the regression model to ensure it continues to capture the latest trends and patterns. This can predict sales high before any festive season or on weekends which the store can take action for prior so they can maximize sales.

## Interpretation and Recommendation of ABC Analysis

The ABC Analysis categorizes products based on their contribution to total revenue. **Category A,** which contributes to almost 70-80% of the sold products like "Kadhai medium", "Patila 2L", "Thali 20 inch" are the primary revenue generator for the shop. **Category B,** which contributes to almost 15-20% of total revenue products like "Mixer", "vegetable cutter" and similar mainly contributes to the category. **Category C,** which includes products which contribute only 5-7 % of total revenue, either category C products are not selling or some products are selling a lot but have very cheap prices.

**Recommendation -**

- Prioritize inventory management for Category A products and try to maintain a suitable stock for category A products. Given their critical importance any stock out of these products could harm sales significantly.
- For products in Category B business should manage inventory for these products smartly and try to maintain the stock so the business can prevent stock outs while maintaining the threat of overstocking of these products.
- Considering the nature of products in Category C, out of the products which are high in sales volume but generate low revenue and the products which have low sales volume and also generate low revenue, the business should focus more on products which have high sales volume and should replace the products with low sales and low revenue.

## Interpretation and Recommendation of Product Performance Analysis

The product performance analysis categorizes the store's products into four groups based on their revenue generation and sales volume. High Revenue and High Quantity **(HRHQ)** products, such as "Kadhai medium" and "Patila 2L," are the most significant contributors to the store's revenue, making them essential to maintain in stock. These products sell in large volumes and generate substantial revenue, forming the core of the store's sales. High Revenue and Low Quantity **(HRLQ)** products, like "Bucket (Steel)" and "Kadhai small," generate significant revenue despite lower sales volumes, likely due to higher pricing and profit margins. Low Revenue and High Quantity **(LRHQ)** products, including "Bowl Small (Steel)" and "Plastic Water Bottle," are lower-priced items sold in large quantities, contributing steadily to sales but less so to revenue. Finally, Low Revenue and Low Quantity **(LRLQ)** products, such as "Peeler" and "Cooker 5L (Prestige)," have minimal impact on both revenue and sales volume, suggesting they are either newer or less popular among customers. This categorization provides critical insights for optimizing inventory management and strategic decision-making. We can combine the analysis of ABC Categorization and Product performance analysis to create an overall better inventory management keeping in mind the products that have high sales or generate high revenue should always be in stocks that will enhance the sales performance of the business.

**Recommendation -**

- Prioritizing the inventory for HRHQ products should ensure that products from this category always stay in stock for maximum utilization in revenue.
- Business has to make a balanced inventory for products belonging to HRLQ or LRHQ. These are the products which either will generate high revenue or products which will be sold in high numbers. Business has to maintain the stocks for both categories smartly so that it can generate good profit while maintaining customer satisfaction.
- Business has to evaluate the viability of products from LRLQ. Either the product is not popular amongst the customer or the quality of these products is not up to the mark. Business should re-look at these product either change the product brand or discard some products and add new products in their place.

## Interpretation and Recommendation of Reorder Point and Safety Stock Calculation

The reorder point and safety stock analysis is essential for an effective inventory management, ensuring that each product maintains an optimal stock level to meet the customer demand without overstocking or risking stockout. The analysis considers factors such as average daily demand, the variability of demand (standard deviation), safety stock levels, and the reorder point for each product. The standard deviation of demand helps understand how predictable the sales of each product are, with higher values indicating more unpredictability. Safety stock acts as a buffer against unexpected increases in demand or delays in supply, while the reorder point indicates the inventory level at which new stock should be ordered.

**Recommendations -**

- Business should ensure that the safety level of products is maintained according to the calculated figure by the analysis.
- Business should follow the calculated reorder points to place new orders for new stocks before inventory levels fall too low, avoid reordering at the last movement and miss sales opportunities.
- Business should pay special attention to products which are in high demand and should reorder on time and keep monitoring daily for better inventory management.
- For low demand products Business should monitor inventory regularly and they can reduce the safety labels of low demanding products, which will prevent overstocking of those products.

# CONCLUSION

The analysis for Rishabh Enterprises shows that data driven inventory management and planning is key to the business's long term success and profitability. The price analysis shows that budget products are in line with customer preferences in Sheohar, Bihar and introducing mid range products can attract customers who are willing to spend more. The volatility in daily sales as seen in sales trend analysis shows that a robust inventory management system is required which can adapt to fluctuating demand especially during peak periods influenced by local events and festivals.

Top selling products are the bread and butter of the store's revenue so it is essential to keep them in stock through proper inventory management and regular stock checks. The accuracy of the regression model in sales forecasting further empowers the store to optimize inventory levels and reduce the risk of stockouts and overstocking. The ABC and product performance analysis gives valuable insights to prioritize inventory for high revenue products and manage low performing products smartly.

Implementing calculated reorder points and maintaining appropriate safety stock levels ensures the store can meet customer demand consistently. By continuously monitoring and adjusting inventory based on sales data and customer behavior Rishabh Enterprises can stay ahead of competition, maximize revenue and customer satisfaction. This approach to inventory management will not only improve operational efficiency but also contribute to the store's long term growth and profitability.