

OPTIMIZING INVENTORY MANAGEMENT FOR ENHANCED BUSINESS EFFICIENCY AND MINIMIZING OPERATIONAL COSTS

BDM CAPSTONE PROJECT FINAL SUBMISSION

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Executive Summary

‘Pizzalicious’ is a small pizzeria located at C78, Jhilmil Colony, Near Yamuna Sports Complex, Dilshad Garden, New Delhi. It is a B2C that deals directly with customers in the segment of ‘Food Service’.

The major issue that the pizzeria is facing is in tracking inventory and keeping stocks of the amount of product inflow and outflow. The fast-paced nature of the restaurant and the wide variety of materials utilized make inventory management a complex task. This problem has led to potential wastage, stock discrepancies, and operational inefficiencies.

The main objectives include implementing a data-driven approach to inventory management, accurately tracking and quantifying inventory, and identifying cost-saving opportunities. By utilizing tools such as Excel, Python, and Machine Learning, the pizzeria seeks to streamline data processing and decision-making, optimizing stock levels, and minimizing wastage and stockouts.

The expected outcome includes enhanced operational efficiency, reduced food wastage, and improved customer satisfaction.

Detailed Explanation of Analysis processes and methods

Process of Data Analysis in Inventory Optimization:

The journey of data analysis encompasses several crucial steps, each contributing to the overall understanding of inventory optimization. This process involves defining the problem, collecting, and organizing data, cleaning, and transforming it, applying analysis techniques, and ultimately drawing meaningful conclusions.

Data Acquisition:

The process of data acquisition is a significant time-intensive endeavor that requires diligent efforts in laying the foundation of credibility with the businesses which requires cultivating trust and rapport with involved parties. My engagement spanned over 40 businesses, with initial meetings often limited to once or twice. An early misstep I recognized was approaching businesses with a direct request for data without having established a rapport which inadvertently led to resistance and reluctance in data sharing, highlighting the significance of building a relationship first.

Given the novelty of the situation, I faced difficulties in clarifying how I could be of assistance to them. This uncertainty extended to shaping my ability to provide precise guidance on data requirements that could translate into actionable insights for their business. The lack of clarity curtailed my ability to confidently explain how my analysis could contribute to their operational enhancement. Most stakeholders believed they comprehended their needs but encountered complexities in real-world scenarios that data analysis could not effectively address. Many were hesitant, convinced data analysis wouldn't offer novel insights.

Considering these challenges, I am committed to enhancing my preparatory efforts, allotting a substantial period for relationship-building and shared understanding. This includes dedicating ample time to immerse myself in the businesses, demonstrating genuine interest, and iteratively defining how data insights can enhance decision-making. Through regular engagements and an empathetic approach, I aim to establish a foundation of trust that underpins effective data acquisition and analysis. Finally, I successfully acquired data from a cooperative business owner, establishing one of the most important milestones in the journey of data analysis: data acquisition.

Identifying Challenges:

The subsequent phase involved inquiring into the fundamental aspects of the business to identify specific challenges that required attention. Upon obtaining the initial dataset outlining the essential components of the business, it became evident that the owner was content with customer retention and profits. Consequently, the focus shifted towards analyzing the inventory management aspects of the business. The original files were backed up as a precautionary measure in case the data was accidentally deleted or lost.

Data Cleaning and Preparation:

The owner-provided data, a blend of clean and mixed information, required meticulous cleaning before analysis. While sales data was relatively clean, it underwent minor adjustments. However, the inventory and material usage sheets demanded extensive cleaning, categorization, and integration with sales and usage data. The confirmation of certain fields and quantities by the owner helped ensure data accuracy needed for inventory optimization.

All extracted insights from the data have been elaborated upon in the subsequent "*Results and Findings*" section of the report.

Details of Data Cleaning and Preparation:

Sales Data Cleaning:

Sales Data for June 2023 provided by the stakeholder:

Category	Item	Code	Sap Code	Qty.	Total (₹)
Item category	Item name	Code of the item (mixed column of number and text)	Empty field	Quantity of each sold	Revenue generated from each item

The sales sheet was relatively clean, consisting of 160 rows and 6 columns. Subtotals were present for each item category. To achieve uniformity, I cleaned fields with inconsistent formatting in the data. This process resulted in a cleaned dataset containing 138 distinct items, totaling 139 rows and 7 columns. After this minor cleaning, the initial rough sales sheet is as shown below:

Item Category	Item Name	Quantity sold per item	Total Revenue per item (₹)	Price per item (₹)	Percentage Revenue per item	Cumulative Revenue
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For the analytical process, I methodically classified the item categories into eight primary broader categories: *Pizzas*, *Combos*, *Garlic Breads*, *Beverages*, *Pasta*, *Burgers*, *Dessert*, and *Mixed Sides*. These categories have been elaborated upon in the mid-term report.

The analysis unequivocally revealed the presence of a Pareto pattern: a substantial 80.73% of the revenue originated from the top 40 items, despite accounting for just 28% of the total unique items. This insight underscored the importance of directing efforts towards this specific subset.

As a result of this revelation, the final sales table consists of 40 unique item entries, arranged in 8 columns, as outlined below:

Item Category (Sales Data)	Item name	Item Category	Item Size	Number of items sold	Total Revenue per item (₹)	Price per item (₹)	Percentage Revenue per item
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Inventory Data Cleaning:

Given the context of my focus on inventory management, my intention was to prioritize items that were consistently in high demand and frequently utilized. This strategic approach aimed to optimize items that were central to daily operations and held the potential for enhanced efficiency gains.

The inventory sheet, created in collaboration with the owner. The inventory sheet was expanded with the inventory snapshot provided by the owner earlier. To categorize the inventory items effectively, I initially classified them into distinct groups, namely: *Dairy and Cheese, Bakery and Pasta, Sauces, Condiments, Vegetables, Frozen, and Miscellaneous*. The owner then provided the specifics of weekly usage approximations for each item. These details encompassed precise units of measurement such as kilograms, units, packets, liters, and sachets. Additionally, the restocking frequency in days and the cost of purchase per unit of each item were included. The initial inventory table consisted of 58 inventory items and 6 columns as displayed below:

Item Name	Item Category	Amount used Weekly	Unit of amount used	Restocking Frequency (in days)	Cost of item (₹)
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An additional sheet providing rough estimations of the usage of top 10 selling items, detailing approximate amounts of ingredients such as cheese, cheese blend, pasta sauce, and vegetables used in the item.

Merged Inventory-Sales Sheet:

Given the rough approximates of inventory usage, I merged the inventory and sales data to gain insights. This involved augmenting the sales sheet with ingredients used for item. As a result, the columns expanded to include the initial list ingredients (in units/grams/ml): *Cheese, Cheese Blend, Capsicum, Sweet Corn, Paneer, Mushroom, Onion, Jalapeno, Tomato, Red Paprika, Olive + Red Paprika + Jalapeno, Sachets (Oregano + Chili Flakes + Tomato Ketchup), Oregano sachet, Chilly flake sachet, Tomato ketchup sachet, Pizza pasta sauce, Exotic sauce, Refined Flour, Refined Oil, Hershey Syrup, Choco lava mix, Ice, Ice cream, and Pasta*.

The sheet was meticulously filled using the details from the approximate estimates of the top 10 items.

Back to Inventory Data and Merged Inventory-Sales Sheet Cleaning:

To fill the details, I had to have an extensive discussion with the owner, who graciously dedicated time in clarifying data, unit measurements, and even identifying certain ingredients that were initially overlooked.

Upon completing the data cleaning process, I shifted my focus to items with the most significant inventory costs. This involved consolidating inventory-related fields and ensuring data consistency throughout. To enhance accuracy, I standardized the unit measurements to milliliters (ml), grams

(grams), and units. Additionally, I streamlined the amount to 1000 grams/ml and 1 unit, which facilitated a more precise cost per item analysis.

After merging and sorting the purchase costs, I focused on the top 90% of the highest purchase costs. This process of merging and cleaning led to the condensing the inventory items to a total of 24 items, grouped under the category: *Bakery and Pasta, Beverages, Dairy and Cheese, Frozen, Give Away, Gas Cylinder, Sauces, and Vegetables.*

The final inventory table consisted of 24 inventory items and 9 columns as displayed below:

Inventory Item Name	Item Category	Unit of measurement	Amount Used Monthly	Cost per unit item (₹)	Total Monthly Cost (₹)	Restocking Frequency (in days)	Times to stock monthly	Percentage Purchase Cost
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I revisited the merged sales and inventory sheet, having meticulously populating all the necessary values. I added a cumulative columns for the top 40 items, these calculated columns aggregated the quantities for each inventory item as listed: *Total Cheese, Total Cheese Blend, Total Refined Flour, Total Capsicum, Total Paneer, Total Olive + Red Paprika + Jalapeno, Total Refined Oil, Total Pizza Pasta Sauce, Total Ice Cream, Total Sweet Corn, Total Coke (250ml), Total Aloo Burger Tikki, Total Exotic Sauce, Total Sachets (Oregano + Chili Flakes + Tomato Ketchup), Total Tomato, Total Burger Bun, Total Onion, Total Virgin Mojito Syrup, Total Choco lava Mix, Total Ice, Total Mushroom,* each corresponding to the top items.

To compute these quantities, I employed a custom formula that multiplied the "*Number of items sold*" by the "*Quantity of Each Inventory Item used for 1 item.*" This calculation yielded the total inventory items used for all items sold under a specific product.

Then I proceeded to construct a table the total estimated inventory usage against the estimated calculated inventory for the top 40 items. The table contained 22 inventory items and columns as follows:

Inventory Item Category	Inventory Item Name	Total Monthly Amount Used [Top40]	Unit	Total Amount Used (in kgs/l)	Cost per unit Item	Total Monthly Cost [Top40]	Monthly Amount Used	Total Monthly Cost	Difference in Amount	Difference In Cost
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I proceeded to compute the comprehensive making cost for each individual item. This computation involved multiplying the total item quantity by its corresponding unit price for each of the 21 total columns mentioned earlier. The resulting figures were aggregated across all these columns, leading to a newly added "Total Making Cost" column.

To determine the making cost for each item within the top 40 category, I divided the "Total Making Cost" by the "Number of items sold" for that specific item. This calculation yielded the column "Making Cost per item" associated with each item in the top 40.

Subsequently, I estimated the potential profit for each item. This estimation was achieved by deducting the "Making Cost per item" from "Price per item" for the "Profit per item" and similarly for the Total Profit [estimated] generated by the top 40 items. The resulting insights were organized into the following table:

Item Category	Item name	Item Size	Number of items sold	Total Revenue per item (₹)	Price per item (₹)	Total Making Cost (₹)	Making Cost per item (₹)	Total Profit (₹)	Profit per item (₹)
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Results, Findings, and Interpretation of Results

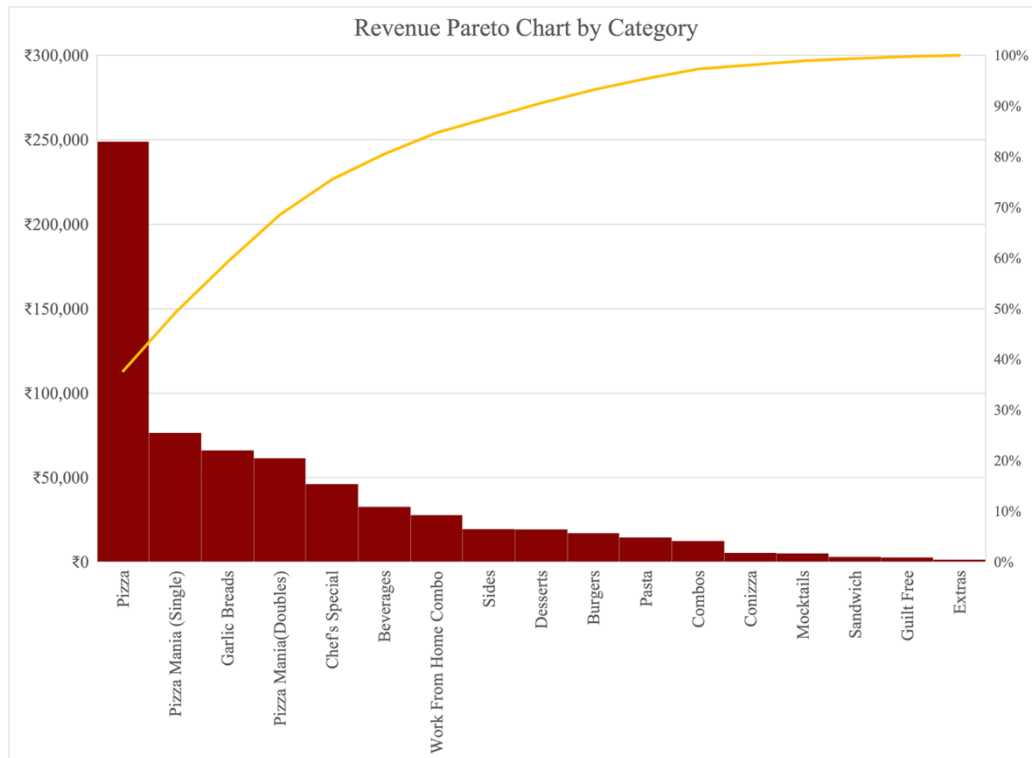
Descriptive Analysis for Overall Sales Data (June 2023):

Descriptive statistic measure	Quantity	Total Revenue	Price Per Item
Sum	4117	₹660854.51	₹41222.11
Mean	29.83	₹4788.80	₹298.71
Standard Error	5.33	₹693.89	₹22.15
Median	8	₹1675	₹202.58
Standard Deviation	62.69	₹8151.40	₹260.25
Minimum	1	₹40	₹19.05
Maximum	414	₹48080.60	₹1248.61

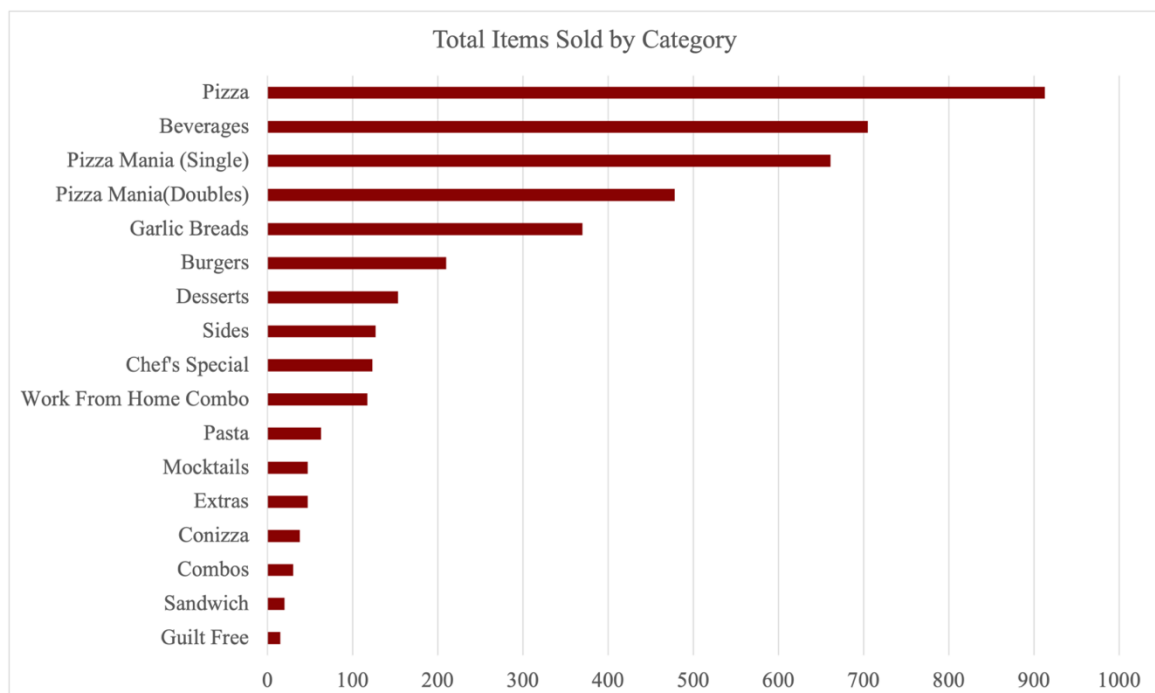
Some insights gained from sales data:

A total of 4117 items were sold in June 2023, averaging approximately 137.23 items per day making an average daily revenue of ₹22,028.48 and a monthly gross revenue of ₹6,60,854.51.

The highest revenue-generating items were *Pizzas and Garlic Breads* generating ₹4,33,139.56 and ₹66,175.04 respectively, which is 75.56% of the total revenue.

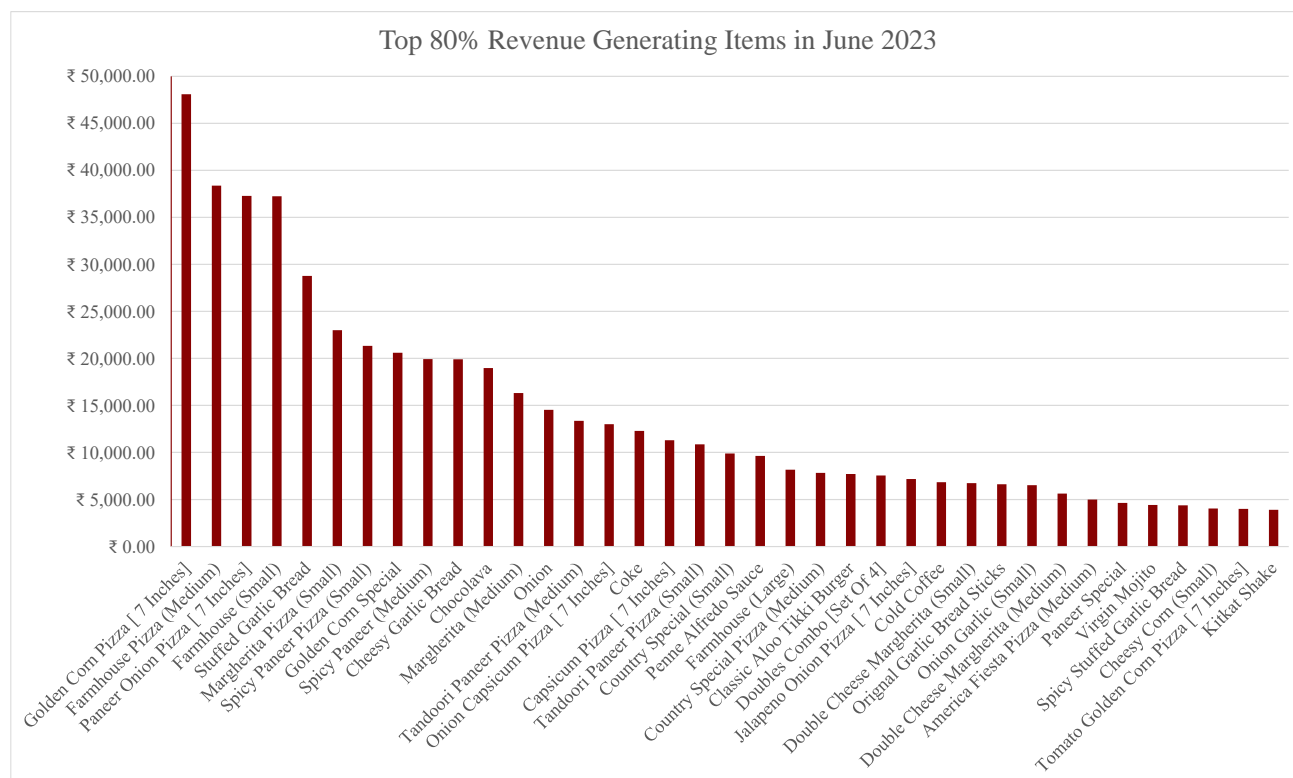


The top-selling categories with the highest quantity of items sold were *Pizza (2175)*, *Beverages(752)*, and *Garlic Breads(370)* collectively constituting of 80% of the total items sold.



The top five items that were ordered the most include *Golden Corn Pizza [7 Inches]*, *Farmhouse Pizza (Medium)*, *Paneer Onion Pizza [7 Inches]*, *Farmhouse (Small)*, and *Stuffed Garlic Bread*. These items collectively contributed 28 percent of the total revenue, with a total of 1132 items sold.

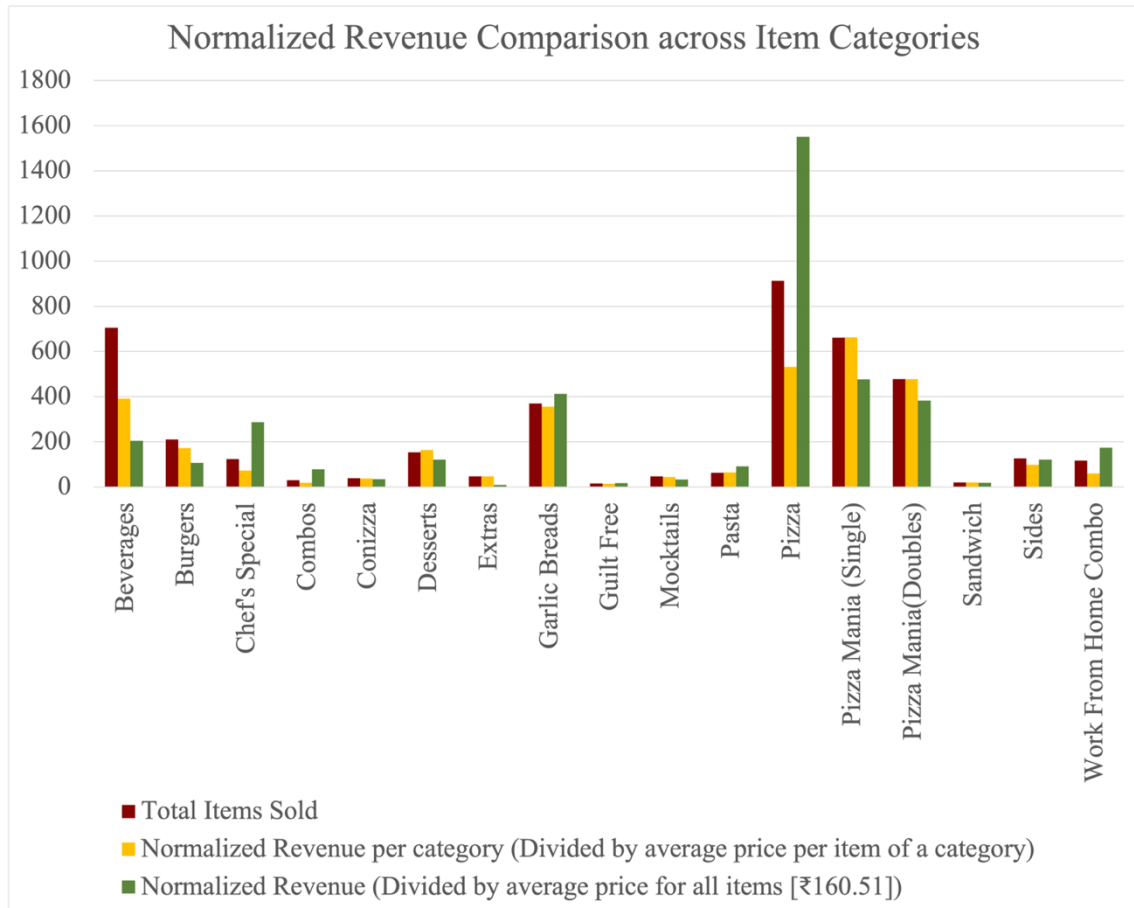
Among the top items, pizzas emerged as the most popular and the most revenue generating item category. The “*Golden Corn Pizza [7 Inches]*” stood out as the top-selling and highest revenue-generating items with a remarkable 414 units sold at ₹116.14 each, generating a total revenue of ₹48,080.60.



Following closely, the "Farmhouse Pizza" secured the second spot for most revenue generating item, with a combined sales total of 277 pizzas, resulting in a substantial total revenue of ₹75,619.63.

Considering the "Farmhouse Pizza (Medium)" pizza's price was 1.88 times that of the "Farmhouse Pizza (Small)," the smaller version outsold the medium by a factor of 1.83. The items with the lowest sales were the "Large" and "Extra Large" pizzas, along with *Peri-Peri Fries*. Additionally, *Vanilla Shake* stood out as the least selling beverage option.

For categories such as *Burgers*, *Beverages*, *Pizza Mania (Doubles)*, and *Pizza Mania (Single)*, the total quantity sold surpasses the normalized revenue. This suggests that while these items are popular in terms of quantity, they may not be as profitable in generating revenue. Conversely, items like *Pizza*, *Garlic Breads*, *Chef's Special*, and *Combos*, even though sold in lower quantities, yield higher revenue. The normalized revenue is derived by dividing the total revenue by the average item price. This relationship is depicted in the bar graph below, which illustrates the comparison between total quantity sold and normalized revenue per category.



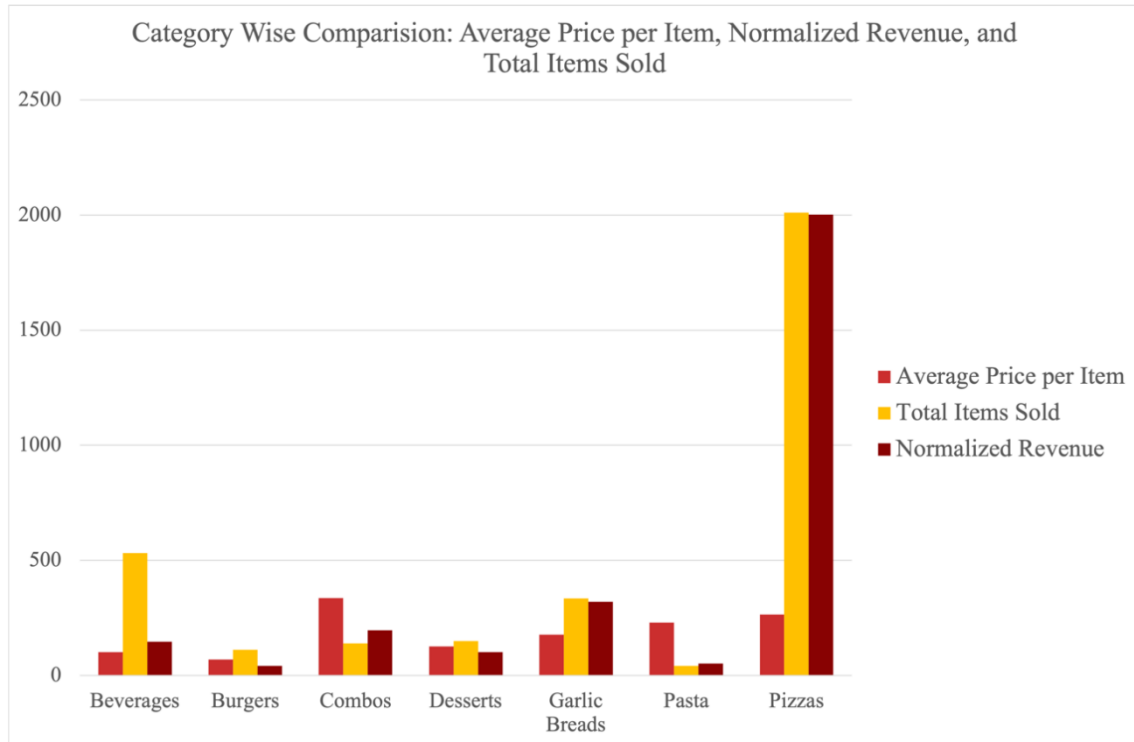
For top 40 items sold:

The top 40 items, which contributed to 80.73% of the total revenue at ₹5,53,530.55, accounted for a total of 3391 items sold, representing 82.37% of the total items sold.

The top-selling categories are *Pizza (2010)*, *Beverages(532)*, and *Garlic Breads(335)* collectively constituting of 87% of the total top 40 items sold, accounting for 86.34% of the total revenue for top 40 items.

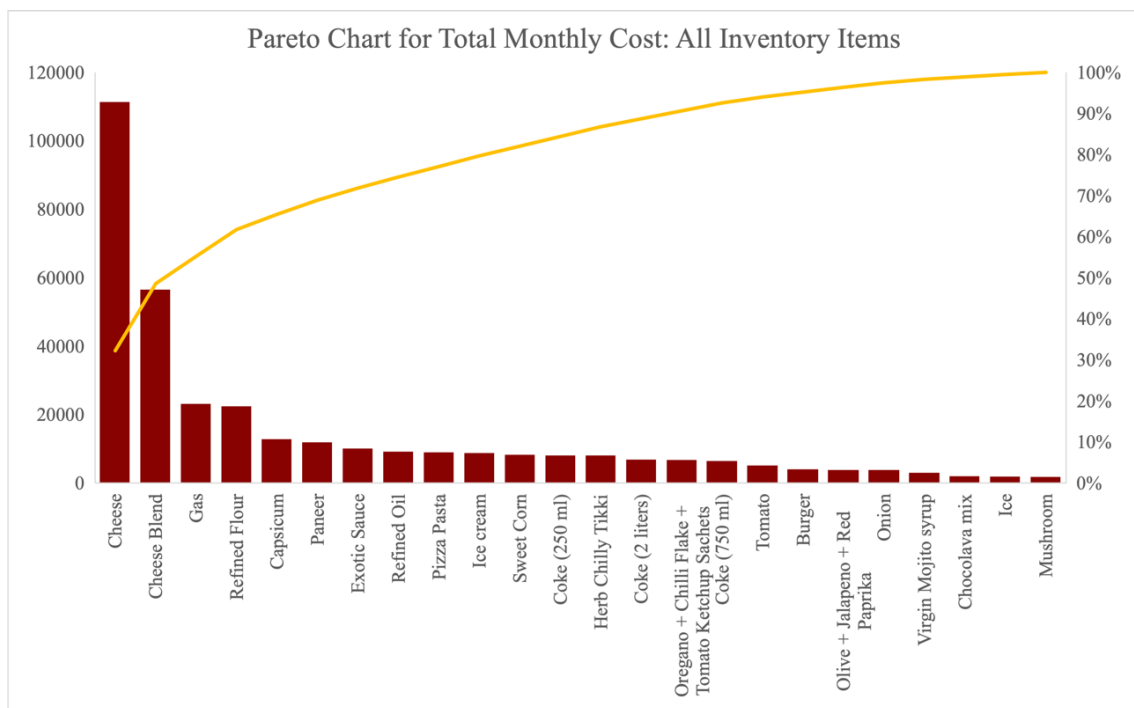


The equal total items sold and normalized revenue for *Pizzas and Garlic Bread* signify balanced demand and revenue. The higher average price per item for *Combos and Pastas* results in fewer items sold, while higher total items sold for *Beverages and Burgers* indicate popularity, but lower normalized revenue and average price per item.

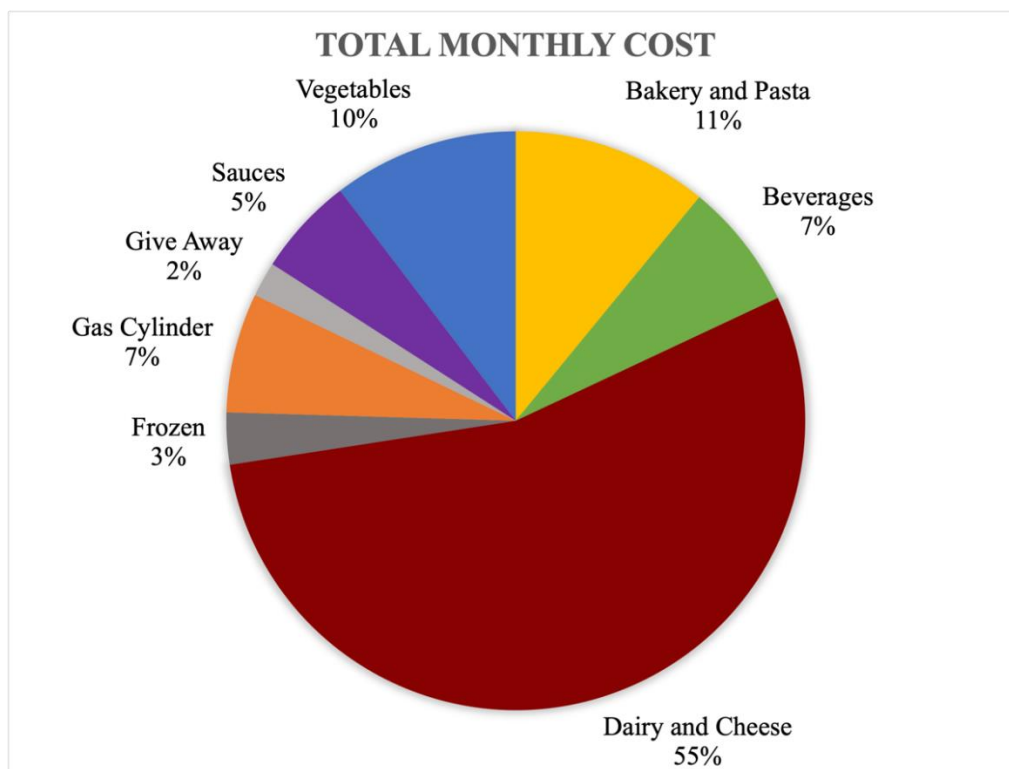


For inventory data:

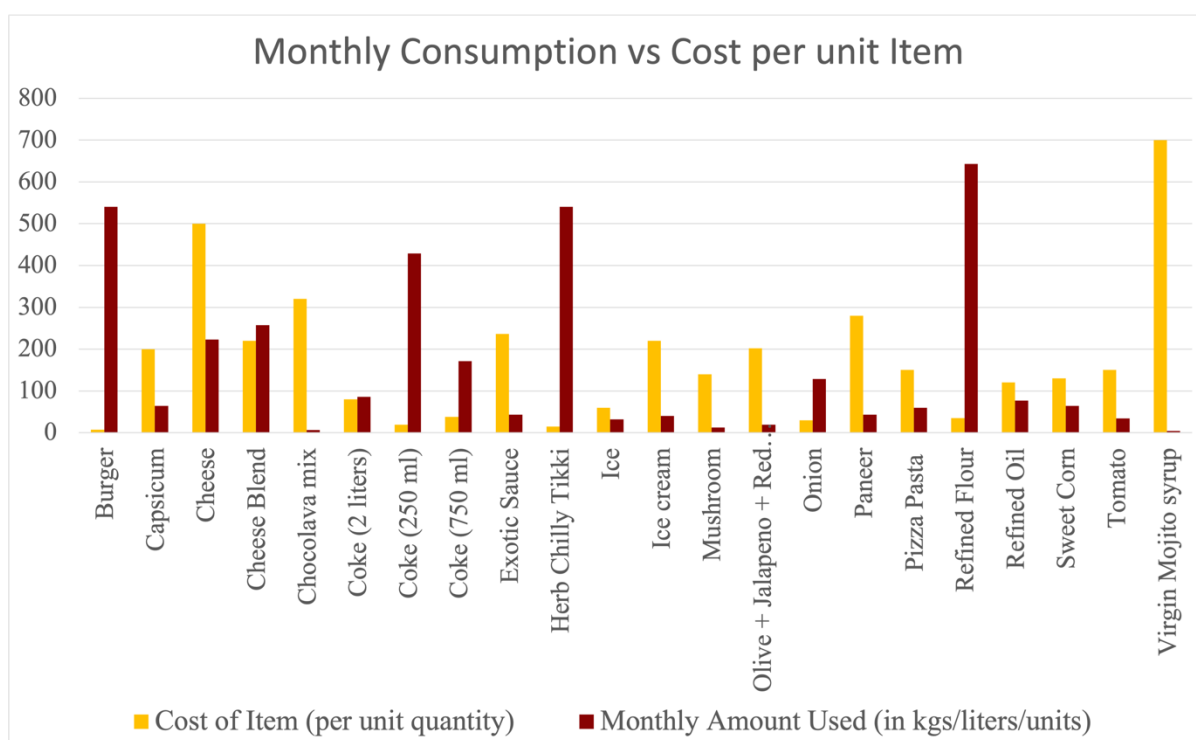
The purchase cost is majorly driven by inventory items such as *Cheese, Cheese Blend, Gas, Refined Flour, Capsicum, and Paneer*, collectively accounting for 68.91% of the total.



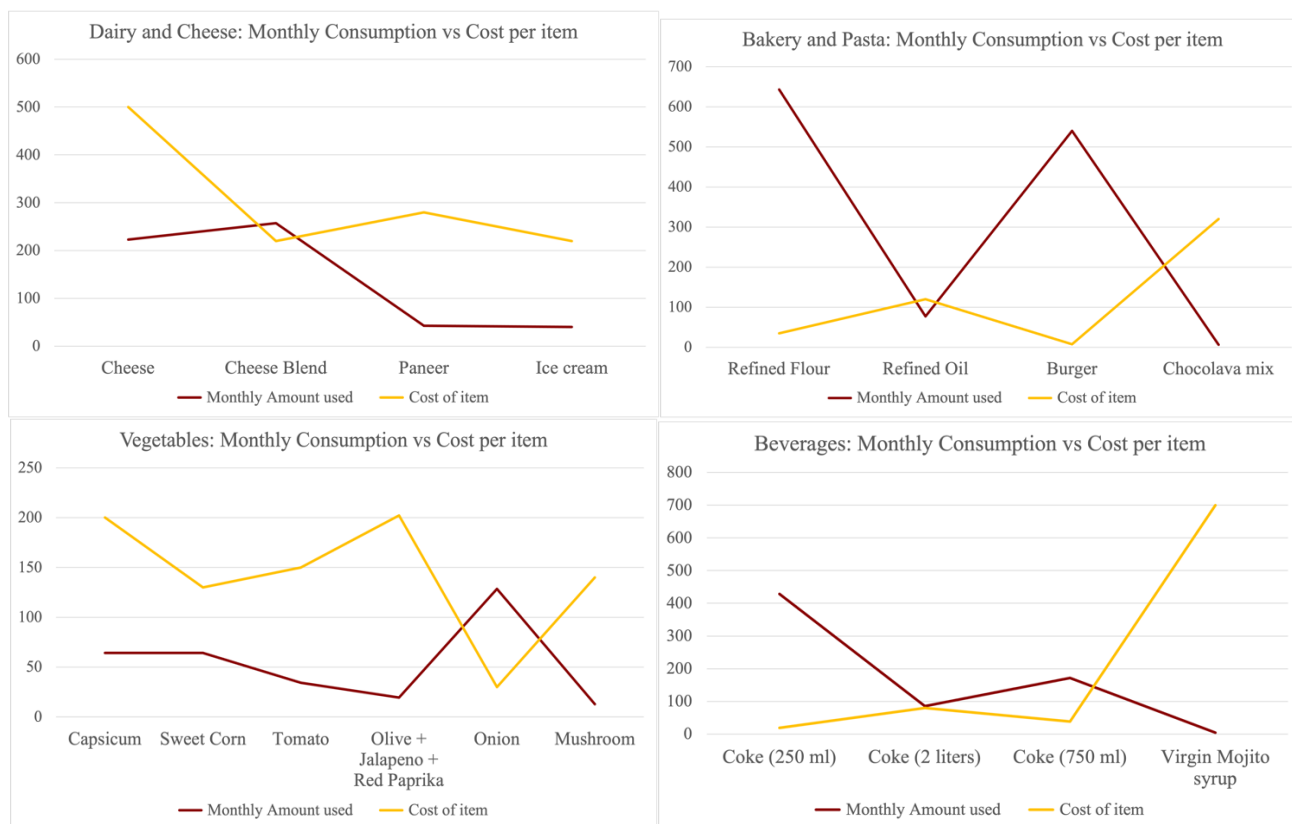
Upon categorization, it becomes evident that *Dairy and Cheese*, *Bakery and Pasta*, and *Vegetables* emerge as the primary contributors, amounting to 76% of the total monthly purchase costs.



The monthly consumption of each item in grams and milliliters, along with their respective costs, reveals that for most items, the monthly cost exceeds the amount used, signifying potential inefficiencies. However, in the case of *Refined flour* and *Onions*, the amount used surpasses the cost of the item, indicating potential cost-effective utilization.



We take a deeper look into the monthly consumption versus the cost per item for the leading contributing inventory categories: *Dairy and Cheese (55%), Bakery and Pasta (11%), Vegetables (10%), and Beverages (7%)*.

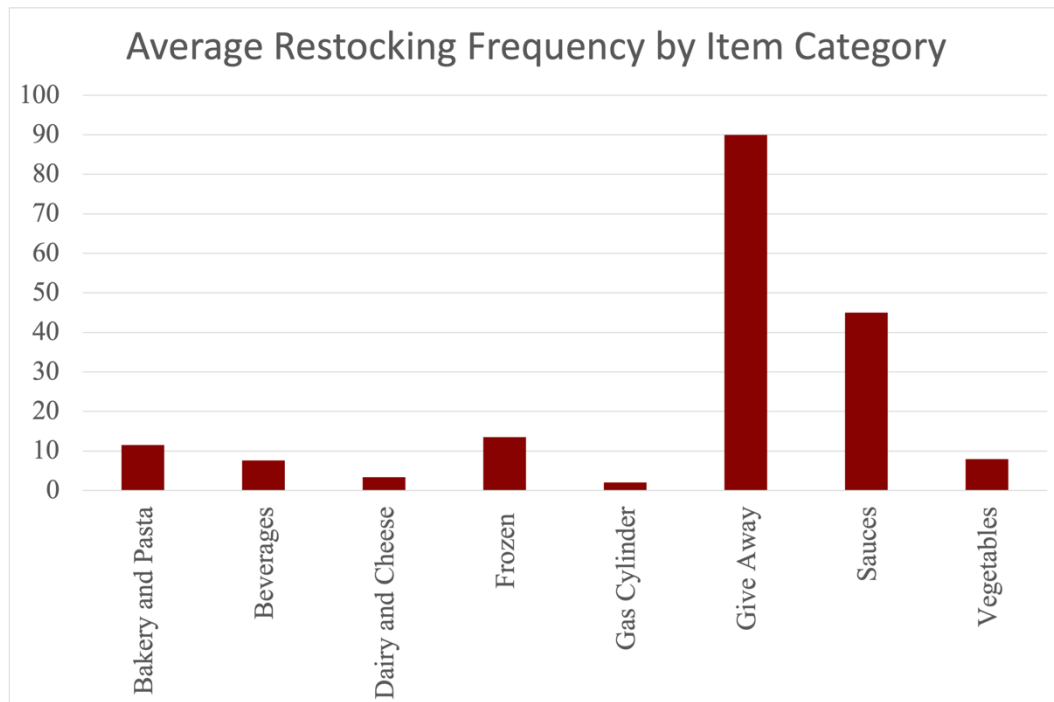


For *Inventory* items:

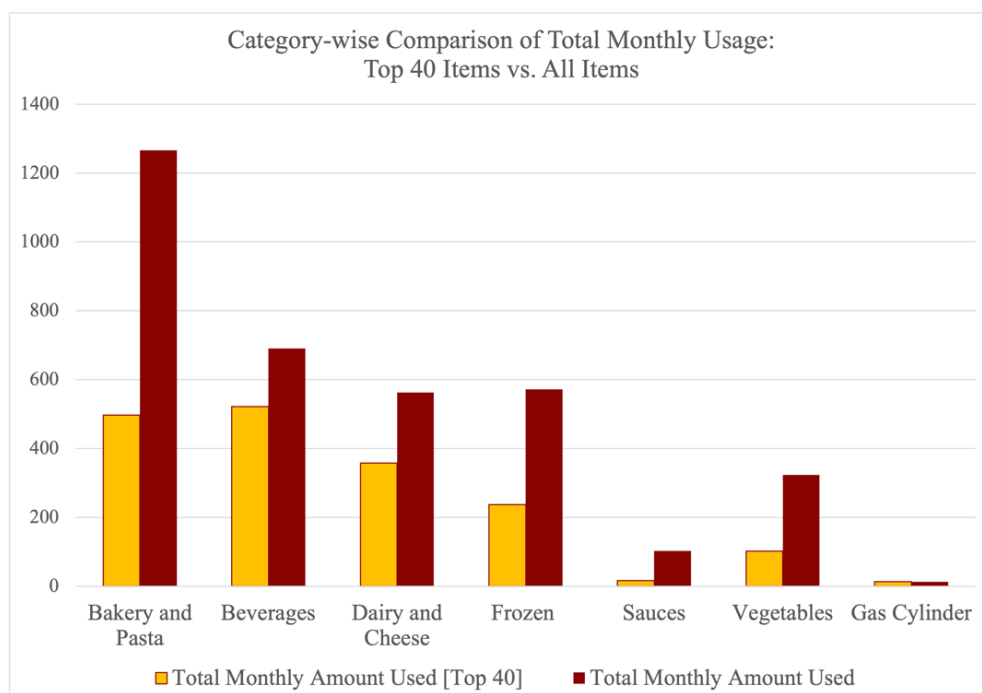
Descriptive statistic measure	Amount Used Monthly	Cost per item	Total Monthly Cost
Sum	16,030.72	₹5,653.27	₹346,130.65
Mean	667.95	₹235.55	₹14,422.11
Standard Error	515.90	₹75.81	₹4,806.50
Median	64.29	₹145.00	₹ 8,121.43
Standard Deviation	2,527.39	₹371.41	₹23,546.94
Minimum	4.29	₹ 0.54	₹1,800.00
Maximum	12,500.00	₹1,800.00	₹111,430.00

The descriptive analysis of inventory sheet reveals that the maximum costing item is the *Gas Cylinder* at ₹1,800.00, while the least expensive is a sachet of *Oregano, Chili Flakes and Tomato Ketchup Sachets* at ₹0.54. The total monthly purchase cost amounts to ₹346,130.65, with the highest expenditure of ₹111,430.00 on 222.86 kgs of *Cheese*. Conversely, the least amount spent is ₹1,800.00

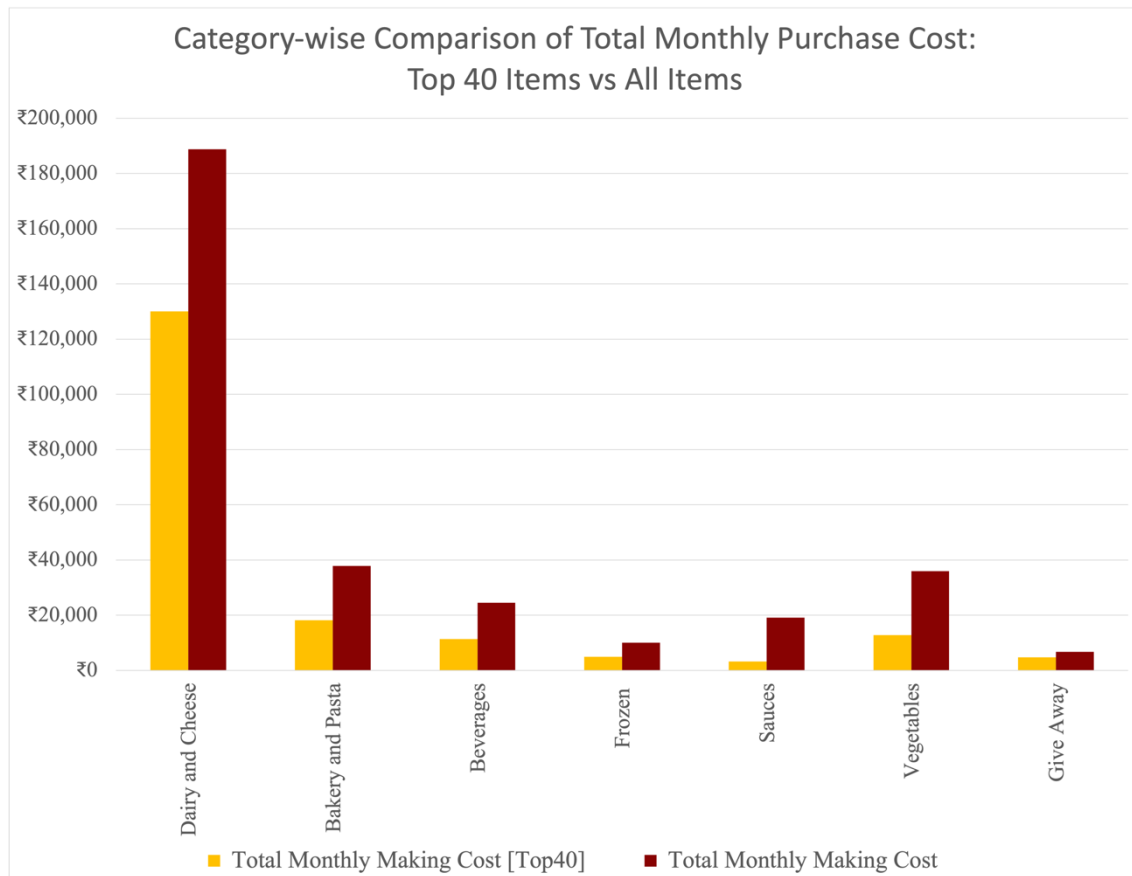
for 12.86 kgs of *Mushrooms*. The *Oregano*, *Chili Flakes*, and *Tomato Ketchup Sachets* account for the highest monthly usage at 12,500 sachets, while the lowest is 4.29 liters of *Virgin Mojito Syrup*.



As shown in the line chart above, it becomes evident that the restock frequency for the "Give Away" items is the highest, occurring approximately once every 3 months. Conversely, the restocking frequency for "Gas Cylinder" and "Dairy and Cheese" items is every other day. For *frozen vegetables*, restocking is required roughly every 18 days, while other *non-frozen vegetables* necessitate replenishment every 2 to 3 days. Monthly restocking is necessary for *Sauces*, while *Beverages* need to be restocked every 3 to 4 days.

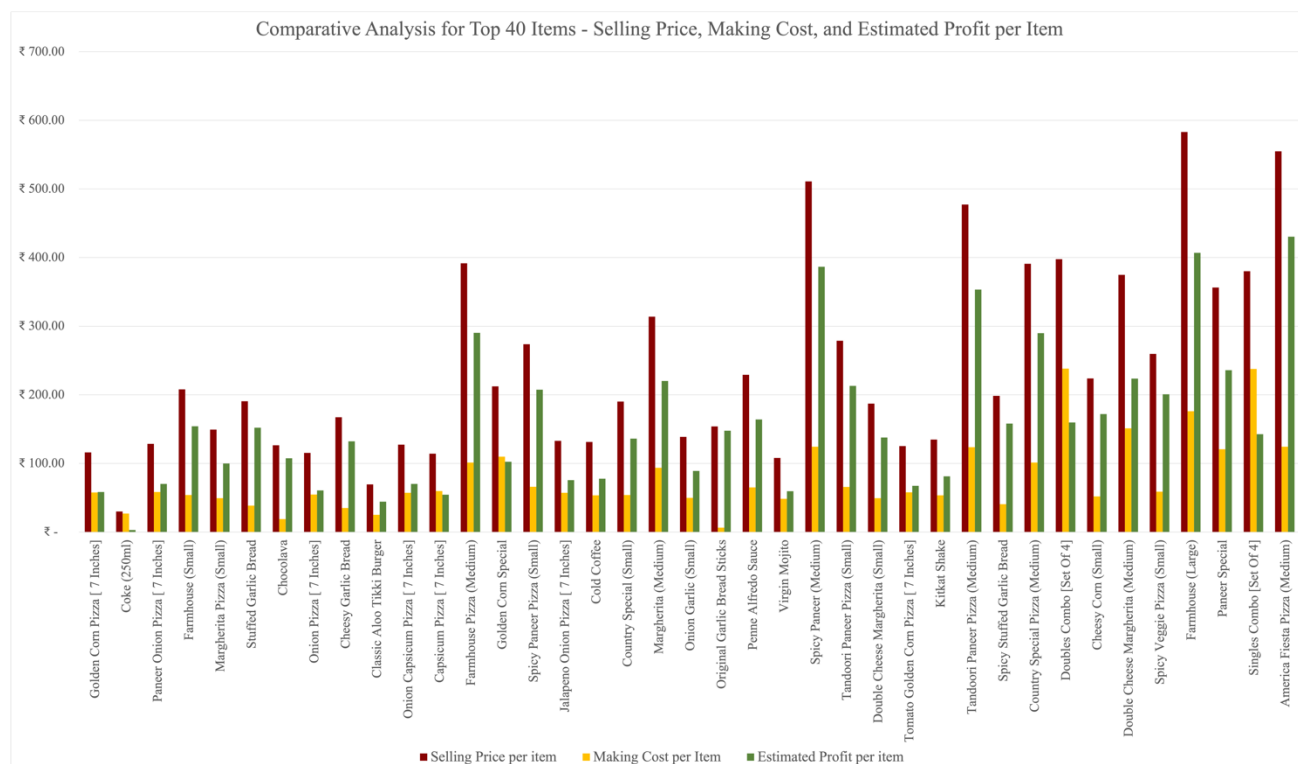


The noticeable disparity between the total monthly amount used and the amount used specifically for the top 40 items is clearly visible in the chart. It's noteworthy that the Monthly Amount usage for the top 40 items accounts for approximately half of the Total Monthly Amount usage. This implies that the quantity utilized for the 3391 items is significantly less than the overall amount used for the 4117 items that were sold. This observation indicates that a significant portion of the inventory is not being efficiently utilized or is experiencing wastage, potentially warranting further investigation into inventory management practices and item consumption patterns.

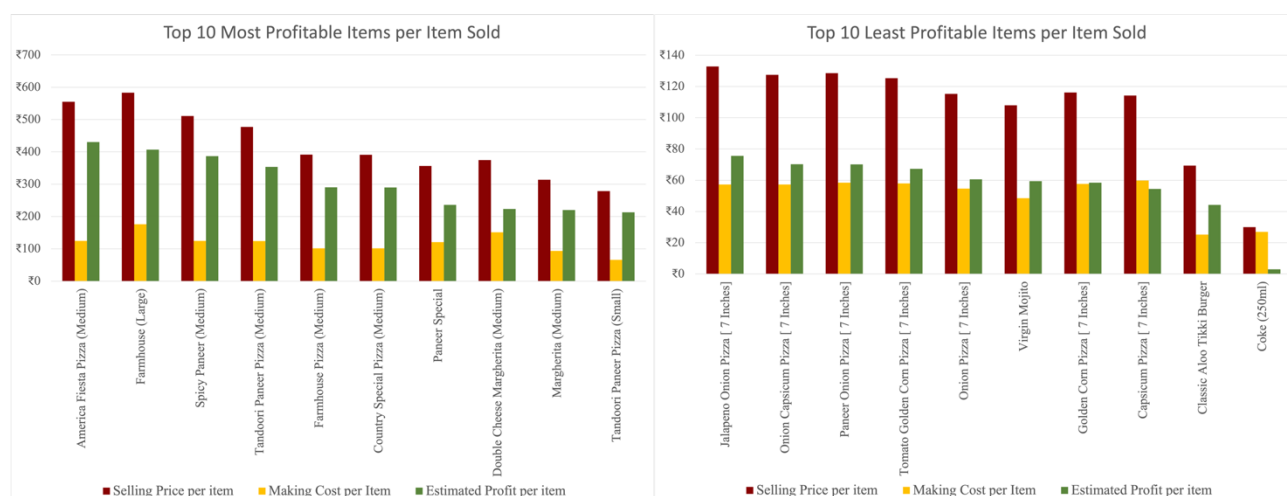


The amount used introduces a discrepancy between the total monthly purchase cost of the entire inventory and the monthly purchase cost specifically for the top 40 items. The expected monthly purchase cost for the top 40 items is estimated at ₹2,08,326.04, calculated considering the usage of all units of gas across the 3391 items. However, the actual total purchase cost amounts to ₹3,46,117.64. To break this down further, the gas component contributes to a total monthly usage cost of ₹23,142.86. When we deduct the gas cylinder costs from the purchase cost of both the top 40 items and the total monthly purchase cost, we obtain monthly amounts of ₹1,85,183.15 and ₹3,22,974.78, respectively. This results in a substantial discrepancy of ₹1,37,791.63. This discrepancy signifies a potential area of concern or inefficiency in the inventory management process. The significant difference between the

expected and actual purchase costs suggests that further investigation is warranted to identify the root causes of this inconsistency.

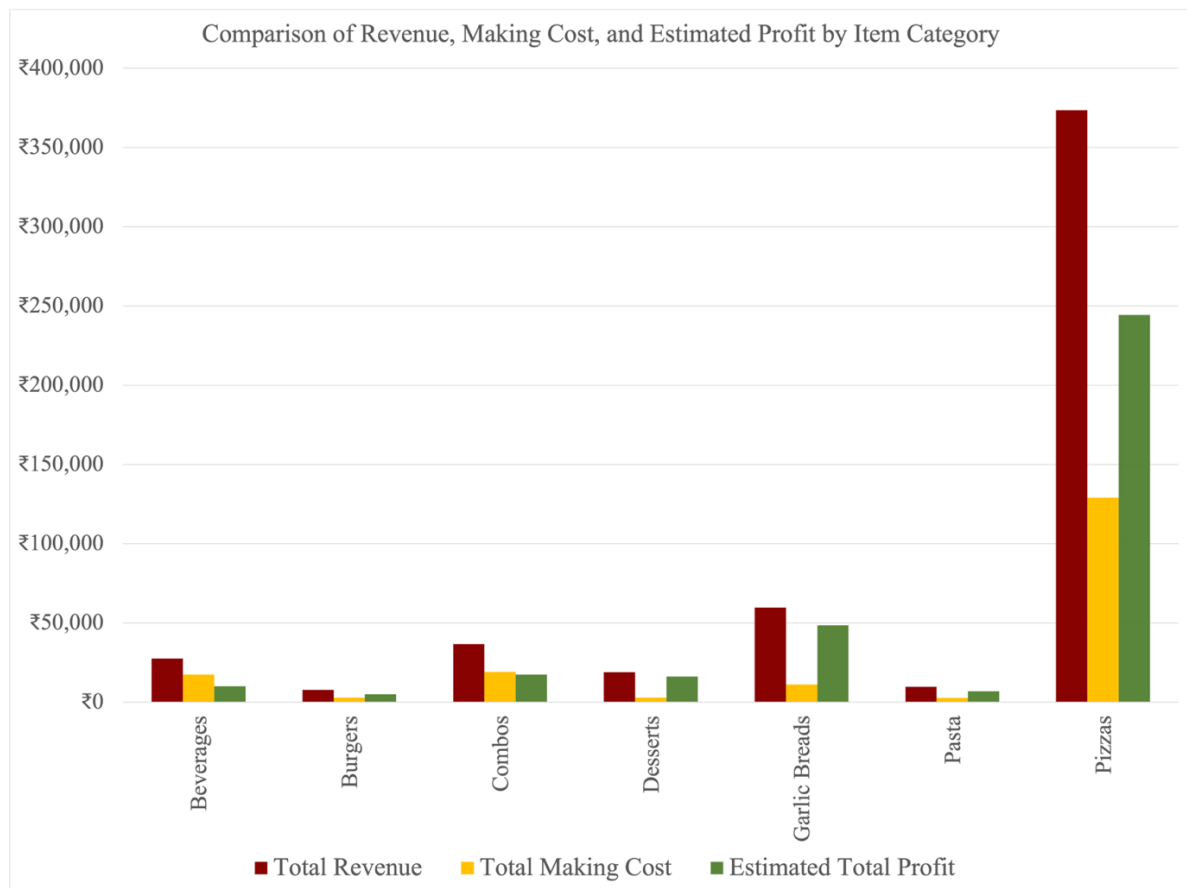


The analysis reveals that the *medium and large pizzas* stand out with selling prices that are significantly higher than their making costs, resulting in substantial profits per item. Among the items analyzed, the largest leap in profitability is seen in *Original Garlic Bread Sticks* and *Choco lava*, suggesting their potential for further promotion could lead to higher profit gains. The profit margin for *Coke* is notably the lowest, indicating an opportunity to enhance margins through pricing or sourcing strategies. The *7-inch pizzas* exhibit lower profit margins compared to their *smaller* counterparts, suggesting a need to reevaluate the cost structure of these pizza sizes and strategies for balancing costs and profits.



The outlined trend becomes notably evident when examining the top 10 most and least profitable items.

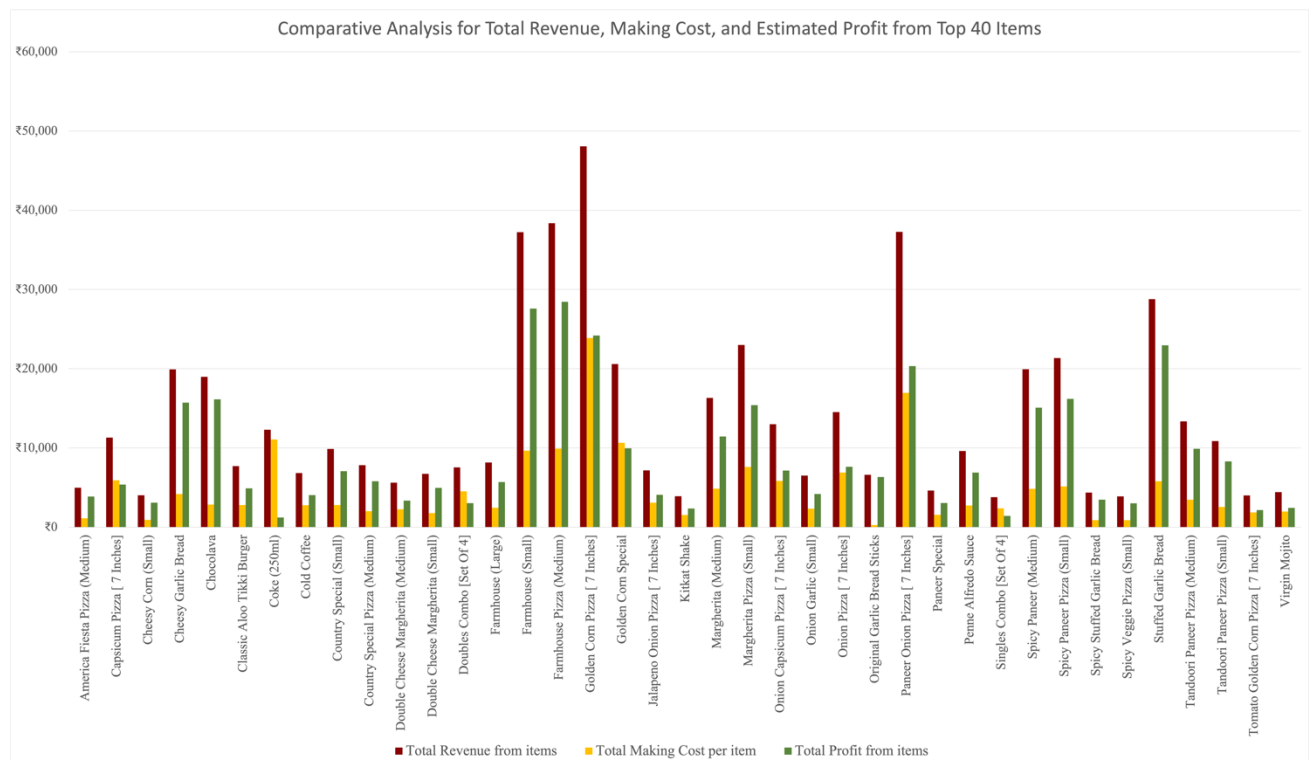
The *Medium pizzas* demonstrate a remarkable presence, occupying the top 7 positions among the most profitable items. In contrast, the least profitable items prominently feature *7-inches pizzas*, with 7 out of the 10 spots attributed to this category. This observation underscores the significant impact of pizza size on profitability suggesting a focus on re-adjustment of pricing could yield substantial improvements in overall profitability through menu optimization.



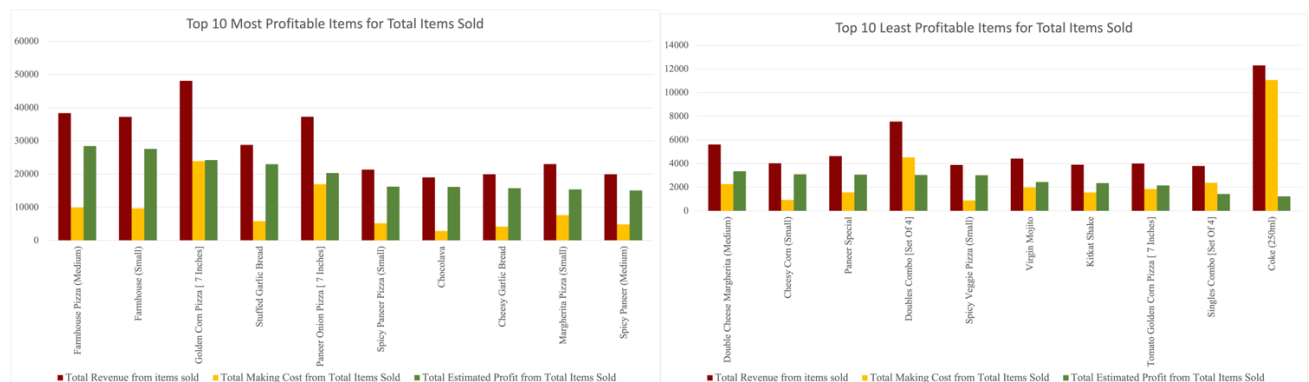
Examining the cumulative revenue generated, it becomes evident that *pizzas*, *garlic breads*, and *desserts* exhibit the most substantial profit margins, with *desserts* and *garlic breads* reaching their peak profitability. *Pizzas* emerge as the primary drivers of significant revenue, underscoring their pivotal role. However, there is potential for improvement in the *beverage* and *burger* categories. To maximize overall profitability, a strategic approach could involve enhancing the beverage and burger offerings to align more closely with the profitability observed in the pizza, garlic bread, and dessert categories. This could lead to a more balanced revenue distribution across the menu items.

The comprehensive assessment of total revenue and estimated profits, considering the total items sold, highlights the significant influence of *Farmhouse (Small and Medium) pizzas*, along with *Golden Corn Pizza (7 inches)*, *Paneer Onion Pizza (7 inches)*, and *Stuffed garlic bread*. With *Stuffed garlic bread* attaining the highest profitability margins, followed by the *Farmhouse (Small and Medium) pizzas*.

The 7-inch pizzas surpass the sales of medium and small variants, underscoring their popularity, while garlic breads also demonstrate strong demand.



The outlined trend becomes notably evident when examining the top 10 most and least profitable items in terms of total revenue.



Recommendation for the Problems

KEY TAKEAWAYS:

Based on these insights, the following recommendations have been proposed:

- Garlic Breads and Choco-lava as Add-ons and in Combo deals:** The highest profitable items are “*Original Garlic Bread Sticks*” and “*Choco lava*” exhibit substantial profit margins, with selling prices far surpassing production costs. This presents a strategic opening to feature

these items as attractive add-ons and integrate them into combo offerings. By doing so, the business can potentially stimulate higher sales volumes, fostering an uptick in overall revenue.

- **Keep Prioritizing High-Profit Items:** Maintain a strong emphasis on items such as *Golden Corn Pizza [7 Inches]*, *Farmhouse Pizza (Medium)*, *Paneer Onion Pizza [7 Inches]*, *Farmhouse (Small)*, and *Stuffed Garlic Bread*, given their remarkable profitability and popularity.
- **Burger-Fries-Coke Value Meals:** Considering that burgers currently have a relatively lower value, strategize by creating a combo meal featuring “*Aloo Tikki Burger*”, along with complementary sides like “*Coke*” and “*Fries*”, could significantly enhance their profitability while offering customers a value-added option.
- **Conizza, Guilt-free, and Sandwich Reassessment:** Given their relatively low revenues and sales, it's prudent to reconsider the positioning of these items. Evaluate their pricing, ingredients, and marketing strategies. If they are not aligning with customer preferences, reallocating resources to more profitable offerings could be a strategic decision.
- **Tracking Material Usage:** Ensuring accurate material usage tracking is crucial. A notable discrepancy emerges from the comparison between the estimated material purchase for 4,117 items (which totals significantly higher) and the actual material cost used in the top 40 selling items (a total of 3,391 items). This discrepancy of **₹1,37,791.63** demands a thorough investigation to identify potential inefficiencies or inconsistencies in material procurement and utilization.
- **Optimizing Margins on Coke:** Evaluate options to improve the profit margin of Coke by exploring alternative sourcing or pricing strategies while ensuring competitive pricing in the market.
- **Regularly Update Chef's Specials:** Keep refreshing the chef's special items to provide new, exciting options for customers and boost revenue.
- **Strengthen Combo Value:** Enhance combo deals and ensure they provide significant value to customers to encourage more spending.
- **Enhance Medium and Large Pizzas:** Evidently, medium, and large pizzas generate notable profits owing to their elevated selling prices. Direct your attention toward enhancing these menu items while upholding their quality standards. Recognize the substantial profitability associated with both medium and large pizzas. Since medium pizza sales are already established, conduct research to identify additional pizza varieties that customers appreciate, yet utilize lower inventory quantities, thus contributing to increased sales and profitability.

- **Evaluate 7-Inch Pizza Profitability:** Analyze the profitability of 7-inch pizzas, particularly when compared to their smaller equivalents. Devise methods to make smaller pizzas appealing, given their higher profitability per item compared to 7-inch pizzas.
- **Ongoing Menu Re-Engineering:** Consistently evaluate the menu through profitability analyses, aiming to pinpoint prospects for introducing high-margin items or adjusting pricing strategies. Explore the possibility of revamping specific menu offerings to leverage low-cost inventory items, thereby augmenting profitability.
- **Analyze Profitability Based on Size:** Examine the elements influencing the varying profit margins among different pizza sizes. Particularly for *small and medium pizzas* with higher profitability, consider introducing value meal bundles comprising different garlic breads and coke to enhance their sales and subsequently boost profits.
- **Optimize Restocking Intervals:** Modify the frequency of restocking to align with real consumption patterns. Consider restocking larger quantities of *cheese and cheese blends*, which are the highest cost purchased items, at reduced rates in bulk.
- **Investigate inventory utilization and wastage due to a notable imbalance:** While 82% of items constitute 50% of estimated costs, the remaining 18% contributes equally. Prioritize examining the reasons behind this divergence and identify solutions to optimize usage and reduce wastage. Collaborative efforts from various departments will aid in uncovering root causes and implementing effective improvements.
- **Streamline Inventory:** Streamline inventory by removing items that are incurring losses due to low value and negligible profit margins. This will reduce storage costs and enhance overall profitability.

These recommendations are based on data-driven insights and can anticipate improved profitability, enhanced customer satisfaction, and better-informed menu decisions to optimize pizzeria's performance, inventory management and revenue.

The charts that have been computed have been shared in PDF format on Google Drive. You can access them through the following links:

- Inventory Cost and Usage:

[<https://drive.google.com/file/d/1obsTWM1qMRQUI9Iu2iUGFjWJb8s0aFaR/view?usp=sharing>]

- Revenue, Manufacturing Cost, and Profits for Sales Items:

[https://drive.google.com/file/d/19dtFXCteczlosuMMK4TUIPEk7CwxZ_2v/view?usp=sharing]