

DATA SCIENTIST NETWORK (DSN) POWER BI

DATA ANALYTICS PROJECT

PIZZA PLACE SALES ANALYSIS REPORT

PRESENTED BY

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Introduction.

In the dynamic and highly competitive world of food service, understanding customer preferences, sales trends, and pricing dynamics is paramount to the success of any establishment. In this context, our pizza sales analysis serves as a comprehensive exploration of the performance and intricacies of a pizzeria's operations. Pizza, with its universal appeal and versatility, has established itself as a beloved culinary delight enjoyed by people across the globe. Yet, in the realm of pizza service, success hinges not just on the mastery of dough, sauce, and toppings but also on the ability to decipher the nuanced intricacies of customer choices, operational efficiency, and pricing strategies.

This analysis delves deep into the wealth of data accumulated by the pizzeria, spanning various dimensions of its business. From the sizes of pizzas that find favour among patrons to the fluctuations in sales across different weekdays, and from the popularity of specific pizza varieties to the percentage-based pricing structures that drive profitability—our investigation leaves no stone unturned. The pizzeria, like many in the industry, faces an ever-evolving landscape. Customers bring not only diverse palates but also distinct expectations driven by factors ranging from convenience and pricing to culinary innovation. In response,

pizzerias must adapt, tailor their offerings, and craft strategies that resonate with their clientele.

In this analysis, we aim to empower the pizzeria with actionable insights derived from the wealth of data at hand. These insights provide a roadmap for enhancing operational efficiency, optimising menu offerings, and fine-tuning pricing strategies. Ultimately, they pave the way for an elevated customer experience and sustained profitability. Through the pages that follow, we will embark on a journey through the pizzeria's sales landscape. We will uncover patterns and trends that have shaped its success, and we will propose strategic recommendations that will enable it to not only thrive in its current environment but also anticipate and adapt to the ever-changing tastes and preferences of its cherished customers.

This pizza sales analysis is more than just a report; it is a guide—a compass that will steer the pizzeria toward continued excellence and prosperity in the fiercely competitive world of pizza service.

Data source.

The pizza place datasets were in csv format and they were provided by our facilitator at the four days of data analytics with power Bi training organised by Data Scientist Network (DSN) under the auspices Kunoch Digi. Four different datasets were used which includes order details, order, pizzas and

pizza types. The datasets had columns containing date, pizza name, price, quantity, category, ingredients, order id, pizza id, pizza id details.

Data cleaning and transformation.

This dataset was cleaned and transformed using Power BI. The datasets were imported into power query and no duplicate values were found, also error values were removed. The data types were changed for columns that had the wrong data type, in addition the column that has both data and time in it were separated using the split to columns tool in the power query to enable us successfully extract the hours in the new time column. New columns that contain the month name and days of the week were added using the Dax functions. Also, the hour in the time column was extracted.

Problem Statements.

The following problem statements will be considered:

1. Determining the Optimal Pizza Size Range Based on Quantity Sold for a Pizzeria Chain
2. Analysing Weekday Pizza Sales by Quantity Sold for a Pizzeria Chain
3. Analysing Sales Trends for the Top Ten Pizza Varieties Based on Quantity Sold in a Pizzeria Chain"

4. Optimising Percentage-Based Pricing by Pizza Category for a Pizzeria Chain.

Data analysis and visualisation.

1. Determining the Optimal Pizza Size Range Based on Quantity Sold for a Pizzeria Chain.

The bar chart below shows the quantity of pizza sold for different pizza sizes. The sales data reveals a clear hierarchy in pizza size preferences among customers. Large pizzas are the most popular, with a substantial 19,000 sold, followed closely by medium and small sizes at 15,600 and 14,400, respectively. In contrast, extra-large and XX-large pizzas have considerably lower sales figures of 552 and 28. This insight suggests that customers overwhelmingly favour standard-sized pizzas, particularly the large, medium, and small options, while the larger sizes have limited demand. This data underscores the importance of tailoring the menu and promotional efforts to align with customer preferences for optimal sales and satisfaction.

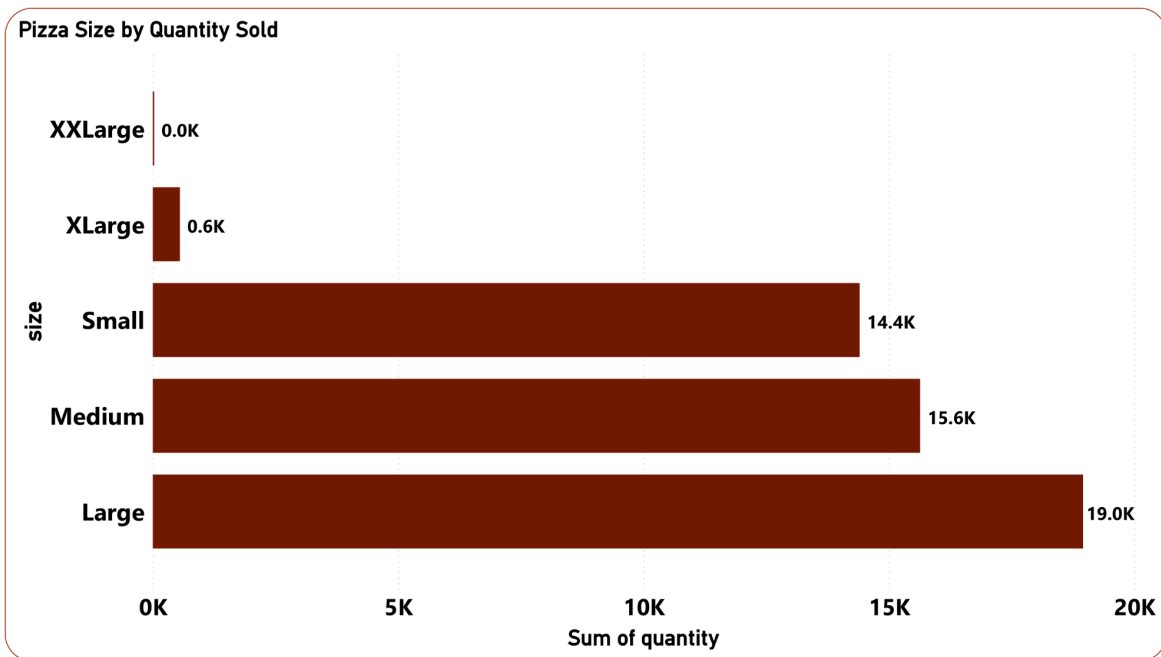


FIG 1: Pizza Size by Quantity Sold

2. Analysing Weekday Pizza Sales by Quantity Sold for a Pizzeria Chain.

Fig 2 below indicates the quantity of pizza sold for different weekdays.

The sales data highlights a pattern in pizza sales across the weekdays. Fridays lead with the highest sales of 8,200 pizzas, closely followed by Thursdays and Saturdays, both with 7,500 pizzas sold. Tuesdays and Wednesdays have consistent sales of 6,900 pizzas each, indicating steady midweek demand. Mondays and Sundays, with 6,500 and 6,000 pizzas sold, respectively, exhibit slightly lower sales, suggesting a moderate start to the week and weekend. This insight emphasises the importance of tailoring staffing levels, inventory management, and marketing efforts to align with the varying customer demand throughout the week.

Additionally, it highlights the potential for targeted promotions or specials on days with lower sales to boost revenue and customer engagement.

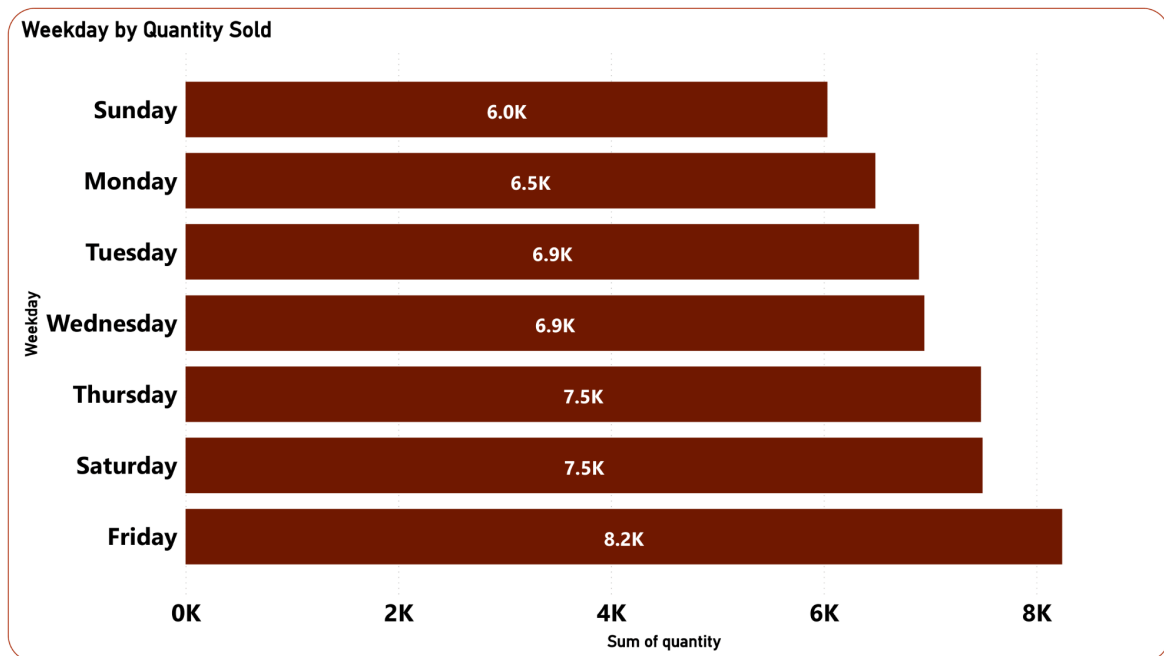


FIG 2: Weekday by Quantity Sold

3. Analysing Sales Trends for the Top Ten Pizza Varieties Based on Quantity Sold in a Pizzeria Chain.

The column chart below shows the top ten pizzas sold. The sales data reveals that the top ten pizza varieties are closely grouped in terms of quantity sold, with only modest variations in sales figures. The "Classic Deluxe Pizza" leads the pack with 2,453 units sold, followed by "Barbecue Chicken Pizza, with 2432" "Hawaiian Pizza, with 2422" "Pepperoni Pizza, with 2418" "Thai Chicken Pizza, with 2371" and "California Chicken Pizza, with 2370" units sold. "Sicilian Pizza,

with 1938" "Spicy Italian Pizza, with 1924" "Southwest Chicken Pizza, with 1917" and "Big Meat Pizza with 1914" units sold.

This insight suggests that there is a balanced customer preference for a variety of pizza options, and these top-selling varieties collectively make up a significant portion of total sales. The pizzeria can leverage this data to focus on maintaining the quality and popularity of these pizzas while also exploring opportunities to promote less popular menu items to diversify sales further.

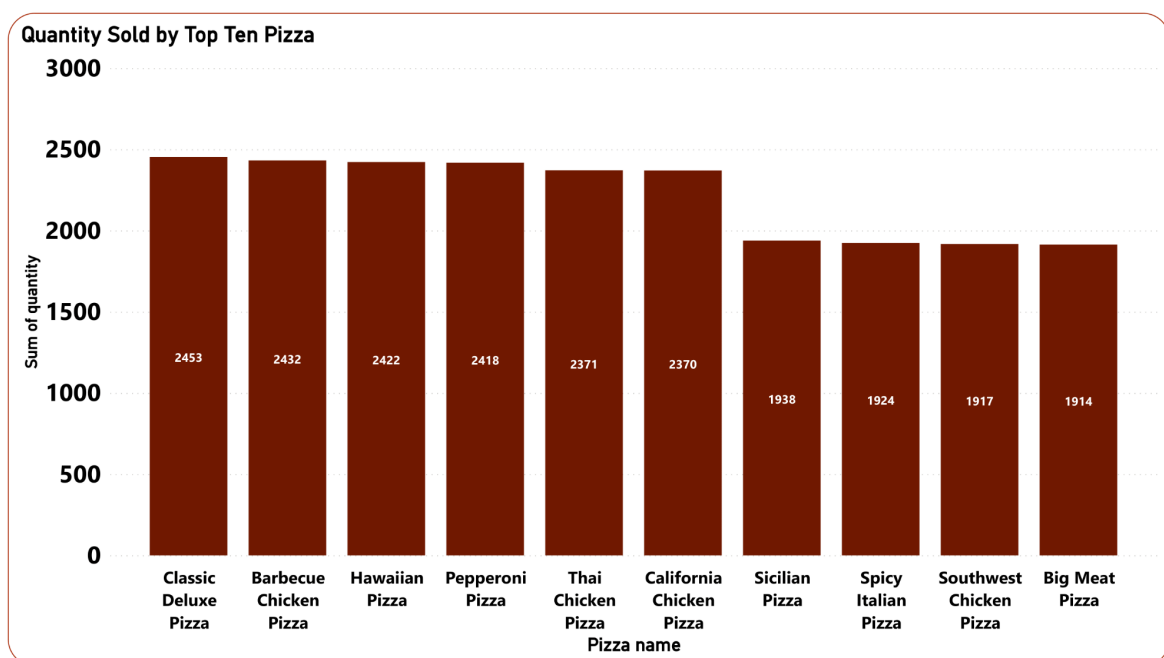


FIG 3: Quantity Sold by Top Ten Pizza

4. Optimising Percentage-Based Pricing by Pizza Category for a Pizzeria Chain.

The pie chart shows the percentage price for each of the pizza categories. The percentage pricing analysis for different pizza categories indicates that the

"Veggie" category has the highest relative pricing, accounting for 27.42% of the total pizza menu price. It is closely followed by the "Classic" category at 26.78%, the "Supreme" category at 26.34%, and the "Chicken" category at 19.47%.

This insight suggests that the pizzeria has priced its "Veggie" and "Classic" pizzas slightly higher in relation to the overall menu price, while the "Supreme" and "Chicken" pizzas are priced at a lower percentage of the total menu price. Understanding these pricing percentages allows the pizzeria to strategically position and market its pizza categories to cater to different customer preferences and pricing sensitivities

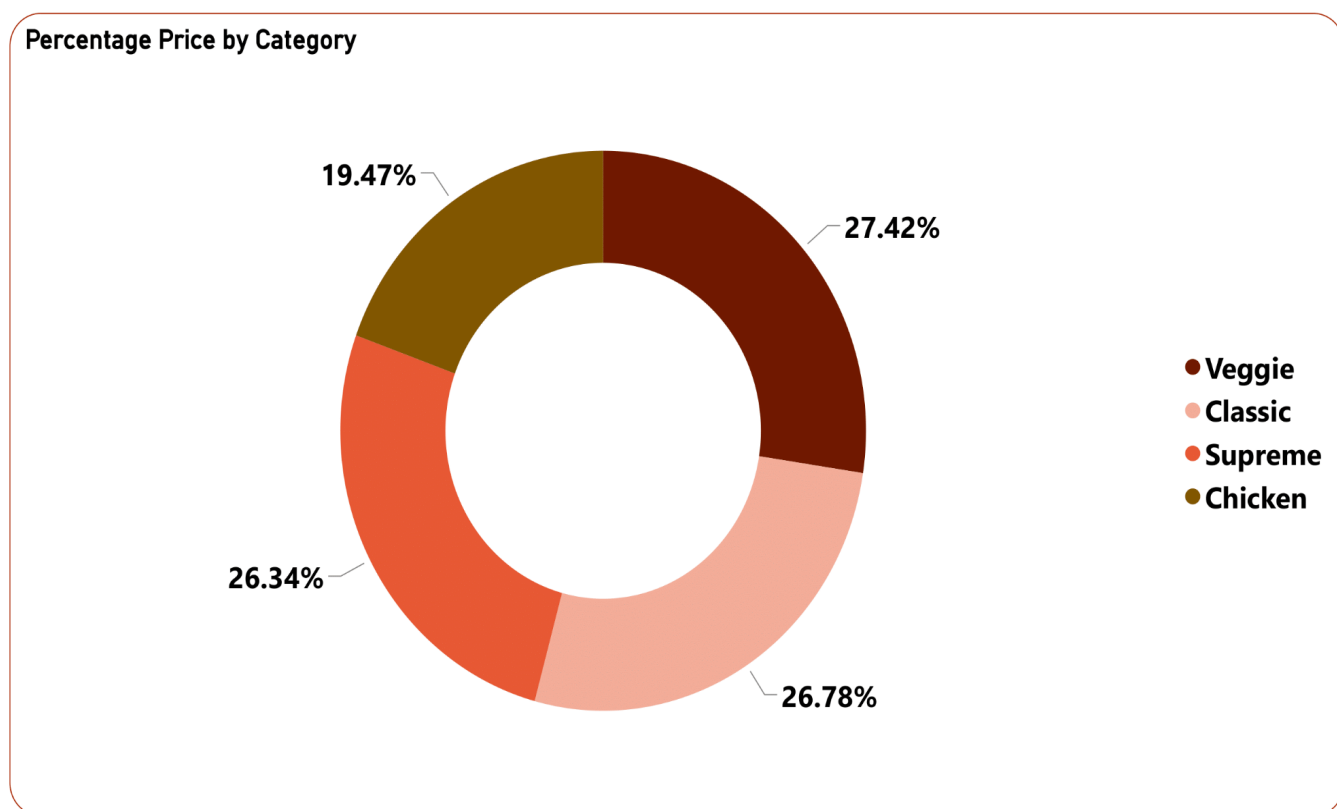


FIG 4: Percentage Price by Category

Recommendations.

After a careful analysis process, I would be giving the following recommendations based on the findings:

1. Based on the sales data, the pizzeria chain should focus its menu and operational efforts on optimising the sales of large, medium, and small-sized pizzas, which collectively account for the majority of sales (Large: 19,000, Medium: 15,600, Small: 14,400). These sizes align well with customer preferences and offer versatility for different group sizes and appetites. Meanwhile, considering the low sales figures for extra-large and XX-large pizzas (Extra-Large: 552, XX-Large: 28), it is advisable to reevaluate their inclusion in the menu. The pizzeria could explore adjustments to portion sizes, marketing strategies, or potentially discontinuing these sizes to streamline operations and reduce food waste.

By concentrating efforts on the most popular pizza sizes, the pizzeria can enhance customer satisfaction, optimise inventory management, and improve overall operational efficiency.

2. Based on the sales data, the pizzeria chain should consider adjusting its staffing, inventory, and promotional strategies to align with the varying customer demand throughout the week. The data shows that Fridays, Thursdays, and Saturdays are the busiest days, with sales of 8,200, 7,500, and 7,500 pizzas,

respectively. To optimise operations, the pizzeria should allocate more resources, such as staffing and inventory, during these peak days to ensure efficient service and prevent shortages. Additionally, the pizzeria can consider running targeted promotions or specials on days with lower sales, such as Sundays and Mondays, when sales are 6,000 and 6,500 pizzas, respectively, to stimulate demand and increase revenue.

This approach will help the pizzeria better meet customer needs, reduce operational inefficiencies, and potentially drive sales on traditionally slower days.

3. The pizzeria should prioritise maintaining the quality and popularity of its top ten pizza varieties as these collectively make up a significant portion of total sales. These top varieties, including "Classic Deluxe Pizza," "Barbecue Chicken Pizza," "Hawaiian Pizza," "Pepperoni Pizza," "Thai Chicken Pizza," and "California Chicken Pizza," consistently sell well with quantities ranging from 1,900 to 2,500. To diversify sales further, the pizzeria can explore promotions or marketing efforts aimed at less popular menu items. However, it's crucial to continue focusing on the quality and appeal of the top-selling pizzas, as they contribute significantly to the pizzeria's revenue and customer satisfaction.

4. To optimise pricing and profitability, the pizzeria chain should consider adjusting its percentage-based pricing strategy. Currently, "Veggie" pizzas are priced at 27.42% of the total menu price, which is slightly higher than "Classic" at 26.78%, "Supreme" at 26.34%, and "Chicken" at 19.47%. To align

pricing with customer preferences and maximise profitability, the pizzeria may consider a slight adjustment in the pricing percentages. This could involve marginally reducing the percentage for "Veggie" while increasing it for "Chicken" or "Supreme" pizzas, thereby ensuring that pricing reflects ingredient costs and customer value perceptions more accurately.

By fine-tuning the percentage-based pricing, the pizzeria can maintain competitiveness while optimising revenue and profitability across pizza categories.

Conclusion.

In conclusion, The pizza sales analysis provides a comprehensive view of the pizzeria's performance and customer preferences. It highlights the popularity of large-sized pizzas and reveals variations in sales by weekday. The report emphasises the significance of top-selling pizza varieties and the potential for menu optimization. Additionally, it suggests opportunities to fine-tune pricing strategies.

Overall, the analysis equips the pizzeria with actionable insights to enhance operational efficiency, customer satisfaction, and profitability. By leveraging these insights, the pizzeria can make data-driven decisions to remain competitive and successful in the market. Also, these insights offer actionable recommendations for the pizzeria, including menu adjustments, staffing optimization, and pricing refinements, to enhance customer satisfaction,

operational efficiency, and profitability. Effective implementation of these recommendations can position the pizzeria for continued success in a competitive market.