PIZZA SALES ANALYTICS DASHBOARD PROJECT

REPORT

Business Intelligence and Data Visulization Analysis

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Project title	Pizza Sales Analytics
Language	DAX, M(Power Query)
Tools	Power BI
Domain	Data Analyst
Project level	Intermediate

Executive Summary

This report presents a comprehensive analysis of pizza sales data facilitated by a Power BI dashboard designed to uncover critical business insights. The primary objective of this project was to visualize sales performance, identify customer purchasing patterns, and evaluate product popularity to drive strategic decision-making. Through the analysis of transactional data, the dashboard reveals a robust operational performance characterized by total sales of **$817.86K** generated from **21,400 orders**.

The analysis highlights several key metrics that define the business's current standing. The average order value stands at **$38.31**, with customers purchasing an average of **2.32 pizzas per order**, culminating in a total volume of **49,570 pizzas sold**. These figures indicate a healthy customer engagement level and efficient volume movement.

Major findings suggest a balanced distribution of sales across categories, with a slight preference for Classic pizzas. However, a closer look at temporal trends reveals distinct peak operational hours during lunch and dinner services. Furthermore, product performance analysis uncovers a significant disparity between top-performing chicken-based pizzas and underperforming specialty vegetarian options. These insights form the basis for the strategic recommendations outlined later in this report, focusing on menu optimization and targeted marketing to maximize revenue.

1. Introd uction

In the competitive food and beverage industry, data-driven decision-making is paramount for sustaining growth and operational efficiency. This project utilizes Power BI to transform raw sales data into actionable intelligence. The resulting dashboard provides stakeholders with a holistic view of business performance, ranging from high-level financial metrics to granular product-level details. The core objective is to move beyond simple reporting and enable diagnostic analysis that answers "why" certain trends are occurring.

The dashboard is structured into two primary views. The **Home Page** serves as an executive overview, displaying high-level KPIs, sales distribution across categories and sizes, and temporal trends. This view allows management to quickly assess daily operations and identify broad patterns. The **Best/Worst Performers Page** dives deeper into inventory analytics, ranking individual pizza varieties by revenue, quantity, and total orders. This segmentation is critical for menu engineering and inventory management.

Figure 1: Full Dashboard Overview (Home Page) illustrating KPIs, trends, and category breakdowns.

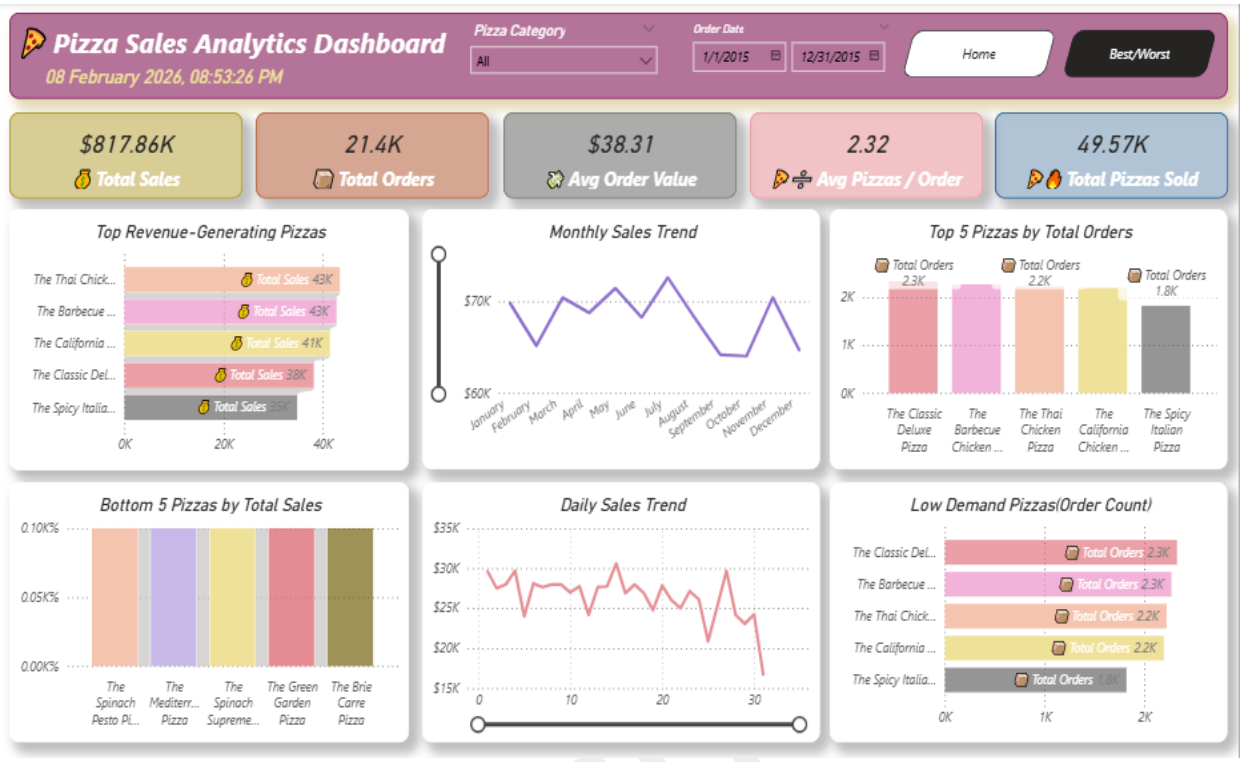

Figure 2: Best/Worst Performers Dashboard illustrating top and bottom product rankings

2. Key Performance Indicators (KPIs) Analysis

The dashboard begins with a snapshot of the most critical financial and operational metrics. These Key Performance Indicators (KPIs) serve as the pulse of the business, offering an immediate understanding of scale and efficiency.

Figure 3: KPI Summary Cards highlighting primary business metrics.

Total Sales ($817.86K): This metric represents the gross revenue generated over the analysis period. A total revenue approaching the million-dollar mark indicates a substantial market presence and successful product pricing strategies.

Total Orders (21.4K): The volume of unique transactions processed is 21,400. This high transaction count validates the store's operational capacity to handle significant footfall or delivery requests.

Average Order Value ($38.31): With an average spend of over $38 per transaction, the business is successfully encouraging multi-item purchases. This value is a crucial lever for profitability; increasing it even marginally can have significant impacts on the bottom line.

Average Pizzas per Order (2.32): This operational metric reveals that customers rarely buy a single pizza. The ratio suggests that the primary customer base likely consists of couples, families, or small groups, rather than individual diners. This insight supports the effectiveness of "combo" deals or family-sized marketing.

Total Pizzas Sold (49.57K): The aggregate number of units sold provides a clear picture of inventory requirements. Producing nearly 50,000 units requires robust supply chain management, particularly for dough and cheese, which are universal ingredients.

3. Sales Distribution Analysis

Understanding how sales are distributed across different product attributes allows for better inventory forecasting and marketing alignment. The analysis breaks down sales by pizza category and size.

3.1 Sales by Pizza Category

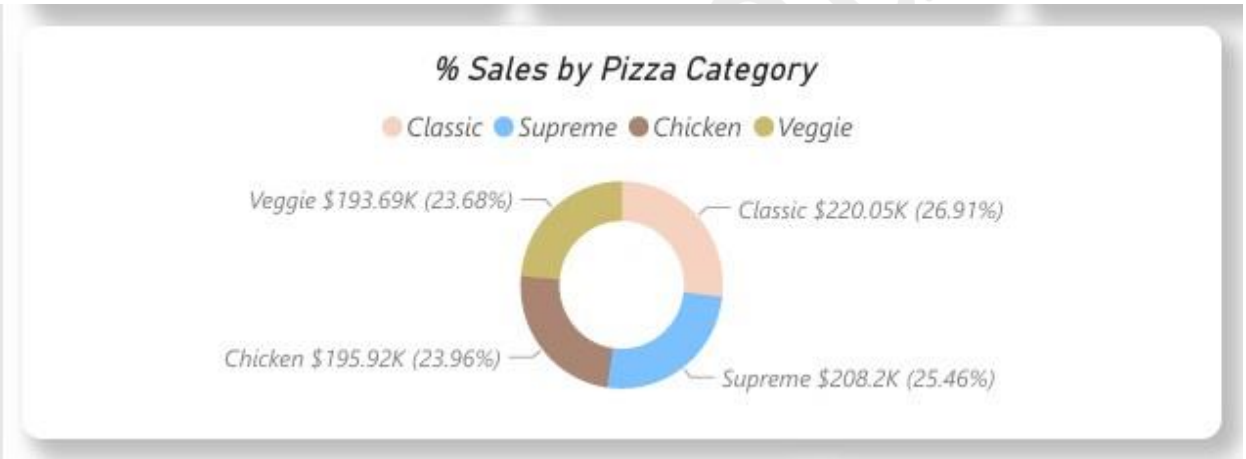

Figure 4: Sales distribution by Pizza Category showing a balanced mix.

The sales data indicates a remarkably balanced portfolio across the four main categories. The **Classic** category leads slightly with **$220.05K (26.91%)**, validating the enduring popularity of traditional toppings. The **Supreme** category follows closely at **$208.20K (25.46%)**, suggesting a strong market for premium, loaded options. **Chicken** and **Veggie** pizzas contribute **$195.92K (23.96%)** and **$193.69K (23.68%)** respectively. This even distribution reduces risk; the business is not overly reliant on a single product type, and it successfully caters to diverse dietary preferences including vegetarians and meat-lovers alike.

3.2 Sales by Pizza Size

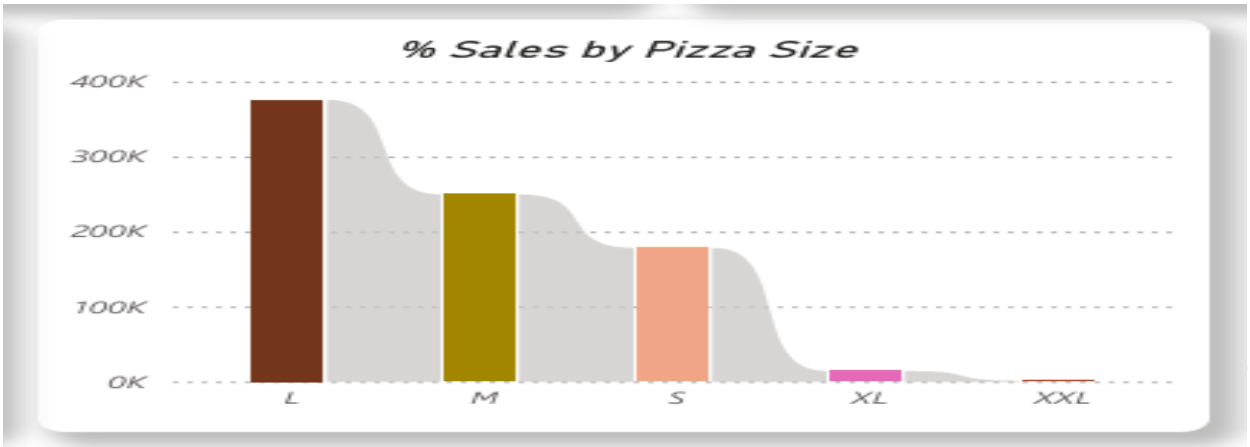

Figure 5: Sales distribution by Pizza Size highlighting preference for Large options.

The analysis of sales by size reveals a distinct customer preference for value and sharing. **Large (L)** pizzas are the dominant revenue driver, followed significantly by **Medium (M)**. Small (S) pizzas represent a smaller fraction of sales, while XL and XXL sizes are niche contributors. This aligns with the "Average Pizzas per Order" KPI (2.32), reinforcing the finding that customers are purchasing for groups. The dominance of Large pizzas suggests that pricing strategies for this size are well-calibrated, offering

4. Temporal Trends Analysis

Analyzing sales over time is essential for operational planning, staffing, and inventory preparation. The hourly trend chart provides a clear visualization of the store's daily rhythm.

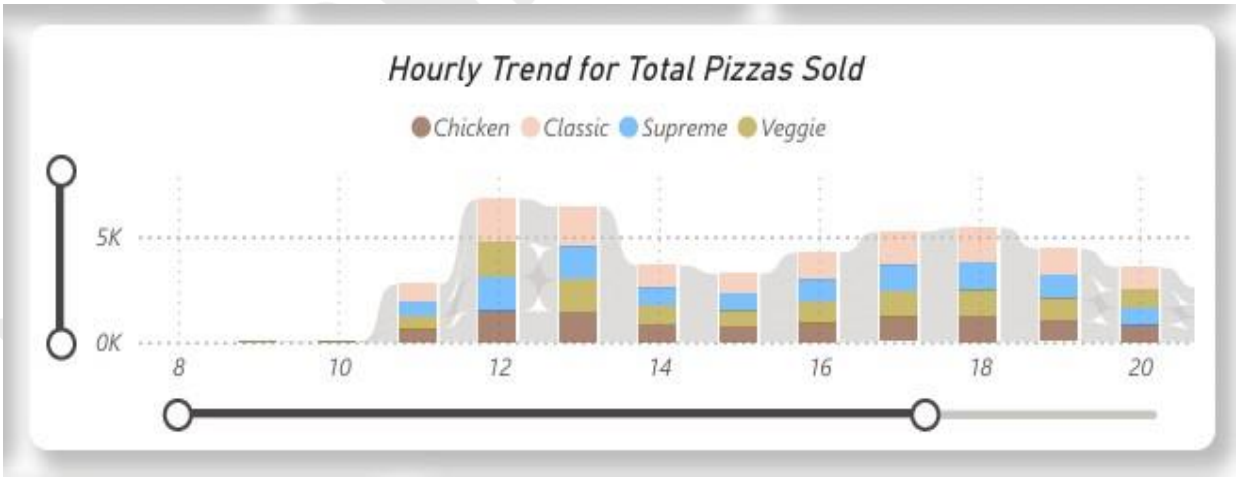

Figure 6: Hourly trend of total pizzas sold identifying peak operational windows.

The data reveals two distinct peak periods typical of the food service industry. The first peak occurs during the lunch window, roughly between **12:00 PM and 2:00 PM**. Following a mid- afternoon dip, sales surge again for the dinner rush, peaking between **5:00 PM and 8:00 PM**.

This pattern has direct operational implications. Staffing levels should be maximized during these windows to ensure service speed and quality. Conversely, the lull between 3:00 PM and 5:00 PM offers an opportunity for prep work, cleaning, or employee breaks. Furthermore, marketing initiatives such as "Happy Hour" specials could be introduced during the off-peak afternoon hours to flatten the demand curve and utilize excess capacity.

perceived value to customers while driving volume for the store.

Daily Sales Trend Analysis

Chart Overview: *Line Graph (Red Line)* | ***Time Period:*** *35 Days* | ***Range:*** *$1 5K - $35K*

Data Patterns & Observations:

Metric	**Value/Observation**
Average Daily Sales	$25K - $30K
Peak Sales Points	~$30K (Multiple occurrences)
Lowest Point	Below $20K (End of period)
Volatility Level	**High** - Significant daily fluctuations
Trend Direction	Cyclical pattern with no consistent upward/downward direction
Critical Concern	**Sharp decline at end of period**

Key Business Insights:

1. **High Volatility:** Daily sales fluctuate significantly between $20K and $30K, indicating operational unpredictability.
2. **Cyclical Pattern:** Repeating peaks and troughs suggest strong day-of-week effects (e.g., higher weekend volume vs. lower weekday volume).
3. **End-Period Decline:** The sharp drop below $20K at the end of the tracking period is a critical anomaly requiring immediate investigation.
4. **Instability Risk:** The lack of a stable baseline indicates potential challenges in daily demand forecasting. Actionable Recommendations:

- **Immediate Action:** Investigate the root cause of the sharp sales decline at the end of the period (e.g., stockout, holiday, technical issue).
- **Pattern Analysis:** Conduct a deeper analysis to distinguish specific weekday vs. weekend performance.
- **Stabilization Strategy:** Implement "Happy Hour" or day-specific promotions on historically low-performing days.
- **Alert System:** Set up automated dashboard alerts for any day where sales drop below the $22K threshold.

Monthly Sales Trend Analysis

Chart Overview: *Line Graph (Purple Line)* | ***Time Period:*** *1 2 Months (Jan-Dec)* | ***Range:*** *$60K - $70K*

Monthly Performance Breakdown:

Quarter	Months	Performance Level	Avg. Sales
Q1	Jan - Mar	Strong Performance	~$68K
Q2	Apr - Jun	**Peak Period**	~$70K (Highest)
Q3	Jul - Sep	**Seasonal Decline**	~$60K (Lowest)

Quarter	Months	Performance Level	Avg. Sales
Q4	Oct - Dec	Recovery Phase	~$65K

Key Business Insights:

1. **Seasonality Confirmed:** There is a distinct mid-year weakness in Q3 (July-September), likely due to seasonal factors such as summer holidays.
2. **Strong Q2 Performance:** The period from April to June represents the peak business window, approaching $70K monthly.
3. **Significant Variance:** A $10K swing between peak (Q2) and trough (Q3) months represents a substantial revenue impact.
4. **Resilient Recovery:** The business demonstrates resilience with a clear recovery trajectory in Q4 (October-November).

Strategic Recommendations:

1. **Q2 Optimization:** Maximize profitability during peak months (Apr-Jun) through premium upsells.
2. **Q3 Intervention:** Launch aggressive summer promotional campaigns to counteract the seasonal dip.
3. **Inventory Planning:** Adjust stock levels downward for Q3 to prevent waste and upward for Q4 recovery.
4. **New Product Launch:** Introduce summer-themed menu items in July to stimulate lagging demand.

Comparative Insights (Daily vs. Monthly)

Aspect	Daily Trend	Monthly Trend
Volatility	High	Moderate
Predictability	Low	High (Seasonal)
Stability	Unstable	Relatively Stable
Action Priority	**Urgent** (Address volatility)	**Strategic** (Seasonal planning)
Management Focus	Day-to-day operations	Long-term strategy

5. Product Performance Analysis

While category-level analysis is useful for broad trends, item-level performance is critical for menu engineering. The dashboard identifies specific "winners" and "losers" to guide menu decisions.

5.1 Top Performers

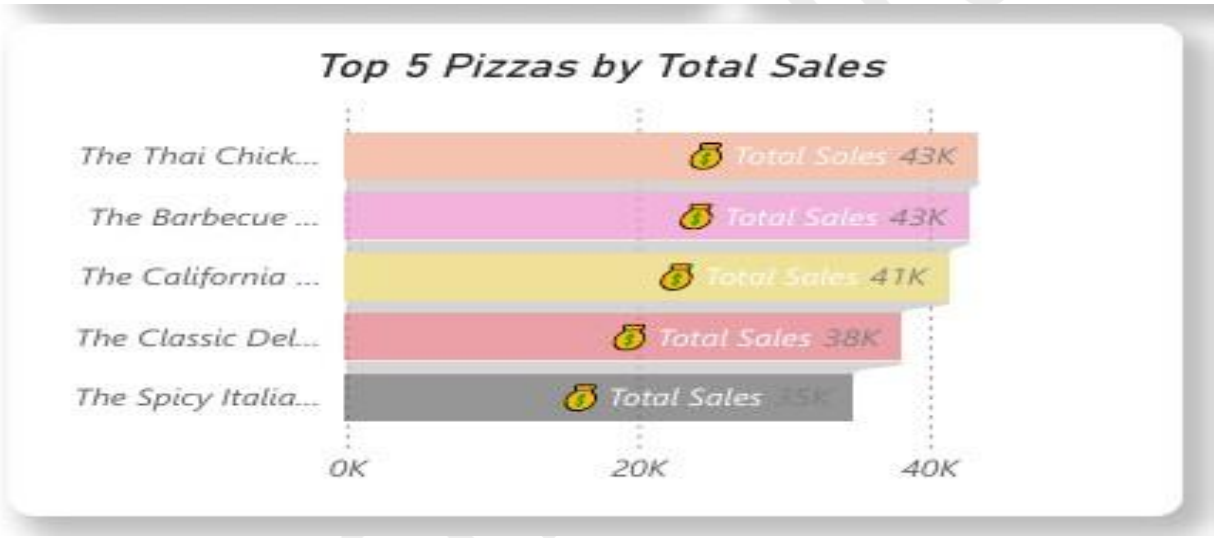

Figure 7: Top 5 Pizzas by Total Sales.

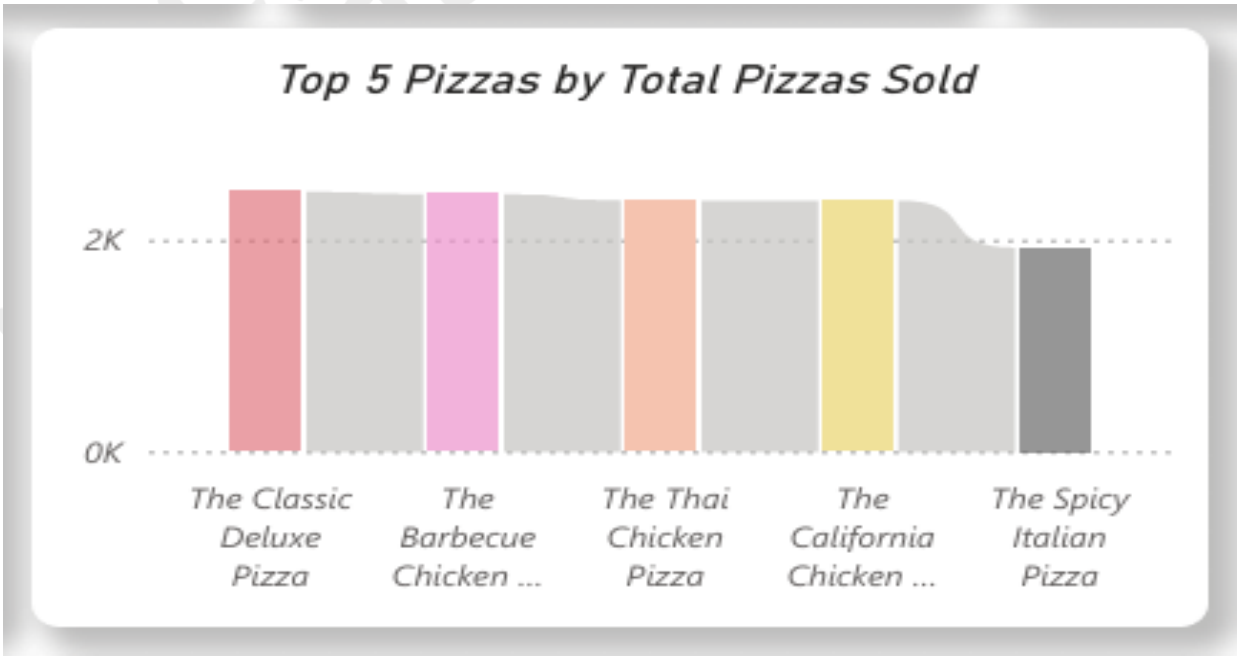

Figure 8: Top 5 Pizzas by Quantity Sold.

The **Thai Chicken Pizza**, **Barbecue Chicken Pizza**, and **California Chicken Pizza** consistently

appear among the top revenue generators. The prevalence of chicken-based options in the top 5 highlights a specific customer preference profile that prioritizes poultry over traditional pepperoni or sausage. The **Classic Deluxe Pizza** is also a volume leader, suggesting it is a "staple" item that appeals to the conservative palate. These top performers should be the focus of promotional imagery and potentially protected from recipe changes to maintain customer satisfaction.

5.2 Underperformers

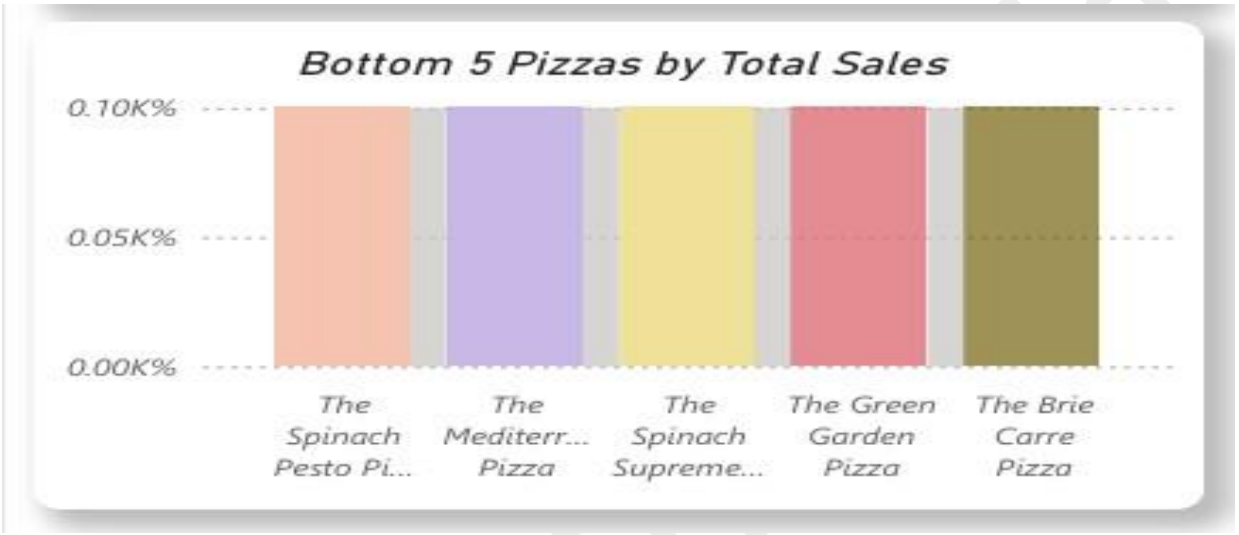

Figure 9: Bottom 5 Pizzas by Total Sales.

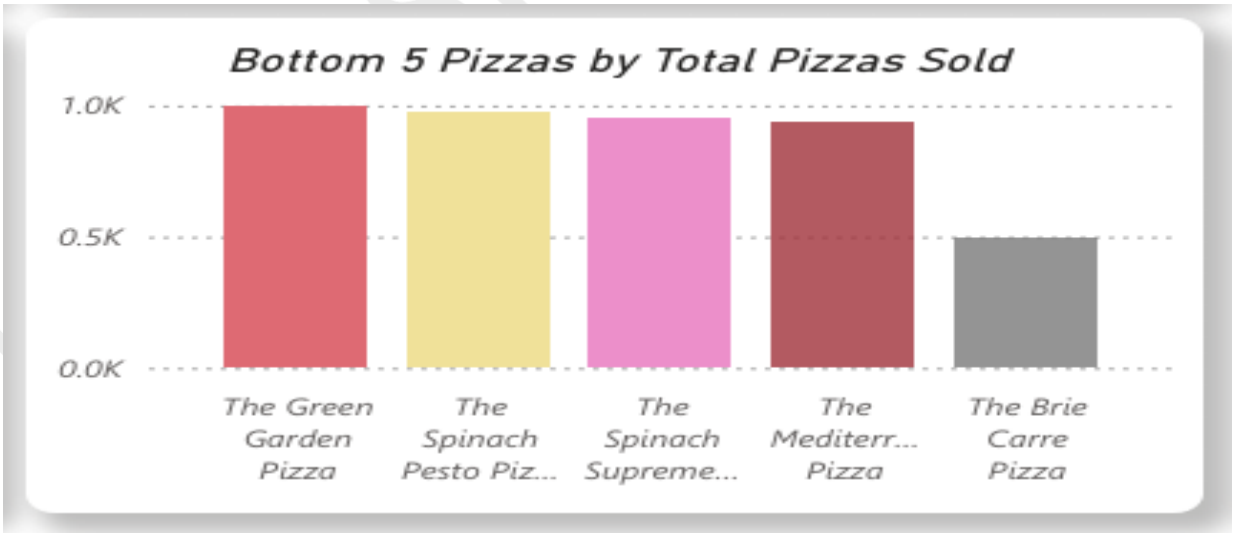

Figure 10: Bottom 5 Pizzas by Quantity Sold.

Conversely, the **Brie Carre Pizza** is the lowest performer across both revenue and quantity

metrics. Other items such as the **Green Garden Pizza**, **Mediterranean Pizza**, and **Spinach Supreme** also lag significantly. A common theme among underperformers is that they are specialized vegetarian or gourmet options (e.g., Brie, Spinach Pesto). This suggests that while the "Veggie" category as a whole performs well (approx. 24% of sales), the specific demand is likely consolidated in a few popular veggie options, leaving these niche variations with insufficient volume to justify their menu space.

6. Key Findings

Based on the comprehensive data analysis, the following key findings characterize the current business state:

- **Strong Financial Health:** With over $800K in sales and consistent volume, the foundational business model is sound.
- **Chicken Dominance:** Customer preference is heavily skewed towards Chicken varieties for premium orders, with 3 of the top 5 revenue-generating pizzas being chicken-based.
- **Group Consumption:** The high average pizzas per order (2.32) and the dominance of Large/Medium sizes confirm that the product is primarily consumed socially.
- **Temporal Predictability:** Sales follow a predictable daily pattern with distinct lunch and dinner peaks, simplifying labor planning.
- **Menu Bloat Risk:** The "long tail" of underperforming specialty pizzas (Brie Carre, Mediterranean) suggests menu bloat, where niche items may be consuming inventory resources without delivering proportionate returns.

7. Strategic Recommendations

To capitalize on these insights, the following strategic actions are recommended:

Menu Optimization: Consider removing or seasonalizing the **Brie Carre** and **Green Garden** pizzas. Removing these underperformers can streamline inventory management and reduce waste. Conversely, introduce a new "Premium Chicken" variation to capitalize on the demonstrated preference for chicken toppings.

Promotional Strategy: Launch a "Happy Hour" promotion (e.g., 20% off or free sides) between **3:00 PM and 5:00 PM** to drive traffic during the afternoon lull. Additionally, bundle deals focused on "Family Packs" (2 Large Pizzas + Sides) would align perfectly with the observed purchasing behavior of 2.32 pizzas/order.

Marketing Focus: Marketing materials should heavily feature the **Thai Chicken** and **Barbecue Chicken** pizzas, as these are proven crowd-pleasers. Highlighting these "Stars" in advertisements ensures the highest conversion rate for new customers.

8. Limitations and Future Work

While this analysis provides valuable insights, it is subject to certain limitations. The dataset currently does not include cost-of-goods-sold (COGS) data, which prevents a true profitability analysis; a high-revenue pizza might have low margins. Furthermore, the data lacks customer demographic information, limiting the ability to perform segmentation analysis.

Future work should focus on integrating margin data to transition from "Sales Analysis" to "Profit Analysis." Additionally, incorporating external factors such as weather or local events could help explain variances in the daily trends, leading to even more precise demand forecasting models.

9. Conclusion

This project successfully demonstrates the power of Power BI in transforming raw transactional data into strategic business intelligence. The dashboard has provided a clear view of the pizza store's operational strengths—specifically its strong lunch/dinner volumes and successful chicken- based menu items. Simultaneously, it has highlighted areas for improvement, particularly regarding underperforming niche menu items. By implementing the recommended menu optimizations and targeted promotions, the business is well-positioned to increase its average order value further and improve operational efficiency. This report serves as a roadmap for data- driven management, moving the business from reactive operations to proactive strategic planning.