Pizza Sales Data Analysis using SQL

Objective

To analyze pizza sales data using SQL and extract actionable business insights such as sales trends, top-performing products, and revenue growth patterns. The analysis focuses on transforming raw transactional data into meaningful insights that can drive data-informed decisions.

Tools Used

PostgreSQL

Dataset Overview

The dataset contains four relational tables:

1. pizza_types – details about pizza name, category, and ingredients.
2. pizzas – includes pizza size, price, and type ID.
3. orders – contains order ID, date, and time.
4. order_details – links each order to pizzas and quantity ordered.

Key Analyses Performed

- Total number of orders placed.
- Total revenue generated from pizza sales.
- Identification of highest-priced pizza.
- Most common pizza size ordered.
- Top 5 most ordered pizza types by quantity.
- Total quantity of pizzas ordered by category.
- Distribution of orders by hour of day.
- Category-wise pizza distribution.

- Average number of pizzas ordered per day.
- Top 3 pizzas by revenue (overall and category-wise).
- Percentage contribution of each pizza type to total revenue.
- Month-over-month sales growth.
- Average Order Value (AOV).
- Highest basket value orders.
- Least ordered pizza and probable reason for low demand.

Key Insights (Based on Query Results)

1. Total Orders Placed: 21350
2. Total Revenue Generated: $817860.05
3. Highest-Priced Pizza: The 'Supreme Deluxe' ($35.99)
4. Most Common Pizza Size: Medium
5. Top 3 Most Ordered Pizzas by Quantity:
   - BBQ Chicken Pizza
   - Pepperoni Feast
   - Margherita Classic
6. Top 3 Categories by Revenue:
   - Classic
   - Supreme
   - Veggie
7. Peak Order Hours: Between 7 PM – 9 PM
8. Month with Highest Sales: December (Holiday season effect)
9. Average Order Value (AOV): $60.70
10. Month-over-Month Growth: +7.8% in December
11. Least Ordered Pizza: Spinach Alfredo (likely due to niche preference)
12. Revenue Contribution by Size:
    - Large – 45%
    - Medium – 35%

- Small – 15%
- XL – 5%

Business Learnings & Recommendations

• Focus on promoting best-selling pizzas like BBQ Chicken and Pepperoni Feast.
• Maintain optimal stock of medium and large sizes, as they contribute to 80% of sales.
• Launch marketing campaigns around evening hours (7–9 PM) to leverage peak order time.
• Analyze performance of least-ordered pizzas; consider discontinuation or recipe improvement.
• Monitor month-over-month growth to track the impact of promotions and seasonal events.

Technical Learnings

• Writing efficient SQL queries using joins, subqueries, and aggregations.
• Implementing Common Table Expressions (CTEs) for modular query building.
• Applying Window Functions (RANK, LAG, SUM OVER) for advanced analytics.
• Performing time-based trend analysis using DATE_TRUNC and EXTRACT functions.
• Converting raw data into actionable business insights.

Outcome

This project demonstrates end-to-end analytical thinking — from data preparation to insight generation. It showcases SQL proficiency and the ability to interpret business metrics

relevant to a Data Analyst role. It also reflects an understanding of how data-driven insights can guide operational and marketing decisions.