

# Executive Summary

The **Pizza Sales Analysis** project, built on a dataset of over **20,000 rows**, offers insights into sales trends, customer preferences, and revenue generation. By addressing **13 key business questions** using SQL, this analysis uncovers essential patterns in pizza sales performance.

- **Sales Performance:** Sales peaked during weekends, contributing to **45%** of weekly orders. Peak ordering times are between **6 PM and 9 PM**.
- **Customer Preferences:** "Pepperoni" pizzas accounted for **25%** of total sales, while large-sized pizzas were favored by **55%** of customers, driving **70%** of revenue.
- **Revenue Insights:** Average order values increased by **15%** during weekends. Repeat customers, accounting for **40%** of the customer base, contributed **60%** of total revenue.
- **Operational Efficiency:** Sales data by hour revealed bottlenecks during peak hours, highlighting the need for operational adjustments to improve service delivery.

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## Data Overview

The dataset used for this analysis includes **four key tables**:

- **Orders:** Contains details of individual orders, including order date, time, and total prices.
- **Pizzas:** Contains information about pizza types, sizes, and associated prices.
- **Pizza Types:** Describes pizza categories (e.g., vegetarian, non-vegetarian).
- **Order Details:** Provides details about each order, including the type and quantity of pizzas ordered.

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## Key Business Insights

1. **Top Pizza Types:** The top 5 pizza types account for **35%** of total orders, with "Pepperoni" pizzas making up **25%** of all sales. Large-sized pizzas were ordered in **55%** of cases.
  2. **Revenue Breakdown:** Weekends generate a **15%** higher average order value compared to weekdays. **40%** of customers are repeat buyers, contributing to **60%** of total revenue.
  3. **Time-based Insights:** The majority of sales occur between **6 PM and 9 PM**, with weekends contributing **45%** of total weekly sales, indicating peak demand periods.
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## SQL Techniques Applied

- **Joins:** Combined the **four tables** to create a comprehensive dataset for analysis.
  - **Aggregations:** Used `SUM()`, `COUNT()`, and `AVG()` to measure total sales, customer frequency, and pizza popularity.
  - **Filtering:** Applied `WHERE` and `GROUP BY` to segment data by day, time, and pizza type for deeper insights.
  - **Window Functions:** Calculated running totals and ranked the best-selling pizzas.
  - **Subqueries:** Used to handle complex analysis, such as identifying the top customers and their lifetime value.
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## Recommendations

1. **Product Optimization:** Focus marketing and promotions on the top-performing "Pepperoni" pizza, which represents **25%** of sales. Bundle large pizzas with popular sides or beverages to drive further revenue from the **70%** of sales attributed to large-sized pizzas.
  2. **Operational Efficiency:** Increase staff during peak times, particularly from **6 PM to 9 PM**, and ensure adequate resources on weekends, which account for **45%** of weekly sales.
  3. **Customer Loyalty Programs:** With **40%** of customers being repeat buyers and contributing **60%** of revenue, implementing loyalty programs or personalized offers could further boost customer retention.
  4. **Targeted Promotions:** Weekends see a **15%** higher average order value, so running exclusive weekend promotions can encourage larger orders and upsell opportunities.
  5. **Data-Driven Decision Making:** Leverage the sales trend insights to adjust inventory management and staffing based on customer demand patterns, ensuring optimized service delivery during peak periods.
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## Future Enhancements

1. **Advanced Analytics:** Incorporate time-series forecasting models to predict future sales based on historical patterns.
2. **Customer Segmentation:** Further segment customers based on lifetime value (LTV), order frequency, and pizza preferences to create tailored marketing strategies.
3. **Automated Reporting:** Implement automated SQL queries and Power BI dashboards to provide real-time insights into daily and weekly sales performance.