Pizza Sales Analytics Report

1. Introduction

The Pizza Sales Analytics project aims to analyze transactional pizza sales data using SQL and visualize insights through Power BI. The objective is to convert raw CSV data (consists of **534,820 rows and 13 columns**) into meaningful business insights by calculating key performance indicators (KPIs), analyzing sales trends, and understanding customer preferences.

2. Data Source

The dataset was provided in CSV format containing order-level pizza sales data including order date, pizza type, category, size, quantity, and price. This CSV file was imported into a SQL database for analysis.

3. SQL Data Processing & Analysis

SQL was used as the primary tool for data analysis. After importing the CSV file into the database, multiple SQL queries were written to calculate KPIs and answer business questions.

3.1 Key SQL Questions / Analysis

- **Basic SQL Analysis Questions**

1. **What is the total revenue generated from pizza sales?**
2. **What is the total number of orders placed?**
3. **What is the total quantity of pizzas sold?**
4. **What is the average order value (AOV)?**
5. **What is the average number of pizzas per order?**

- **Time-Based SQL Questions**

6. **How does daily sales performance vary by day name?**
7. **Which day of the week generates the highest revenue?**
8. **What are the monthly sales trends based on order date?**
9. **Which month has the highest number of orders?**
10. **How does sales performance differ across day number and month number?**

- **Category & Size-Based Analysis**

11. **Which pizza category contributes the most to total revenue?**
12. **What is the sales distribution by pizza size (Small, Medium, Large, X-Large, XX-Large)?**
13. **Which pizza size is most frequently ordered?**
14. **What is the revenue contribution percentage by category?**
15. **How does average order value vary by pizza size?**

- **Product Performance Analysis**

16. **What are the top 5 best-selling pizzas based on quantity sold?**
17. **What are the top 5 pizzas by revenue?**

18. **Which pizzas are the least-performing in terms of sales?**
19. **Which pizza types generate high revenue but low order volume?**
20. **Which products should be considered for menu optimization?**

- **Advanced / KPI-Oriented SQL Questions**

21. **Rank pizzas within each category based on revenue performance.**
22. **Identify peak sales periods using order date analysis.**
23. **Compare weekday vs weekend sales performance.**
24. **Calculate cumulative revenue over time.**
25. **Identify seasonal patterns in pizza demand.**

- **SQL → Power BI Integration Questions**

26. **Which KPIs calculated in SQL are visualized in the dashboard?**
27. **How do SQL-derived KPIs improve dashboard performance?**
28. **How does transforming data in SQL reduce Power BI load?**
29. **Which insights are better handled in SQL versus Power BI?**
30. **How does SQL aggregation improve reporting accuracy for large datasets?**

- **Business-Oriented Questions Answered Using SQL**

31. **Which pizzas should be promoted to increase revenue?**
32. **Which products should be discontinued due to low performance?**
33. **How can staffing be optimized using peak-day sales analysis?**
34. **How can inventory planning be improved using sales trends?**
35. **What actionable insights can management derive from SQL analysis?**

4. KPI Calculation Using SQL

Key Performance Indicators such as Total Revenue, Total Orders, Average Order Value, Total Quantity Sold, and Sales Contribution by Category and Size were calculated using aggregate SQL functions like SUM(), COUNT(), AVG(), GROUP BY, and window functions.

5. Power BI Integration

The analyzed SQL data was connected to Power BI for visualization. Power Query was used to perform additional data transformations and data cleaning.

5.1 Power Query Transformations

- Pizza size abbreviations were converted to readable formats (L → Large, M → Medium, S → Regular, XL → X-Large, XXL → XX-Large).
- New date-related columns such as Day Name, Day Number, Month Name, and Month Number were created using the order_date column.
- Conditional columns and formatting were applied to enhance readability and analysis.
- Data types were validated and cleaned for accurate reporting.

6. Dashboard Development

An interactive Power BI dashboard was developed to present the insights visually. The dashboard includes KPI cards, bar charts, line charts, and slicers to allow users to explore sales trends dynamically.

7. Business Insights

The analysis revealed peak sales days and months, top-performing pizza categories and sizes, and underperforming products. These insights help businesses optimize inventory, staffing, pricing strategies, and marketing campaigns.

8. Conclusion

This project demonstrates the effective use of SQL for data analysis and Power BI for visualization. By integrating SQL-based KPIs with interactive dashboards, the Pizza Sales Analytics solution supports data-driven decision-making and improves overall business performance.