

Sales Performance Analysis Dashboard - SQL & PowerBI

Project Overview

This end-to-end analytics project demonstrates how I used SQL and Power BI to uncover valuable business insights from a pizza sales dataset. The objective was to support data-driven decision-making by developing a robust backend using SQL Server and an interactive, executive-level dashboard in Power BI.

The project replicates a real-world business intelligence environment where KPIs, operational trends, and product performance must be analyzed to support strategic planning.

Tools & Technologies

Microsoft SQL Server

- **Data Import and Storage:** imported large CSV files into a structured database.
- **Relational Modeling:** Designed normalized tables to ensure data integrity and efficiency.
- **SQL Queries:** Wrote SQL scripts to compute KPIs and support report development.
- **Performance Metrics:** Developed queries for aggregation, filtering, and transformation to extract business-relevant metrics.

Power BI

- **Data Integration:** Connected Power BI directly to SQL Server for live data querying.
 - **Data Cleaning with Power Query:** Applied transformations including data type correction, column splitting, null value handling, and filtering.
 - **DAX Measures:** Created custom measures (e.g., Total Revenue, Average Order Value) using DAX for dynamic calculations.
 - **Visualization Design:** Developed a professional dashboard with KPI cards, bar charts, line graphs, pie charts, funnel visuals, and slicers to enable data exploration.
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Project Objective

To transform raw pizza sales data into a decision-ready format by:

- Defining and calculating key performance indicators (KPIs)
 - Highlighting patterns in customer purchasing behavior
 - Identifying top and bottom-performing products
 - Enabling data exploration through visuals and filters
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Key Performance Indicators (KPIs)

Each metric was implemented with optimized SQL queries and supported by Power BI visuals.

1. Total Revenue

SQL:

```
SELECT ROUND(SUM(total_price),2) AS Total_Revenue FROM pizza_sales
```

	Total_Revenue
1	817860.05

Result: \$817,860.05 **Business Value:** Aids in revenue tracking and financial health assessment.

2. Average Order Value (AOV)

SQL:

```
SELECT  
  ROUND(SUM(total_price)/count(DISTINCT order_id),2)  
  AS Average_Order_Value  
FROM pizza_sales
```

	Average_Order_Value
1	38.31

Result: \$38.31 **Business Value:** Helps assess pricing strategy and upselling effectiveness.

3. Total Pizzas Sold

SQL:

```
SELECT SUM(quantity) AS Total_Pizza_Sales from pizza_sales
```

	Total_Pizza_Sales
1	49574

Result: 49,574 pizzas **Business Value:** Useful for supply chain and inventory planning.

4. Total Orders

SQL:

```
SELECT COUNT(DISTINCT order_id) AS Total_Orders FROM pizza_sales
```

	Total_Orders
1	21350

Result: 2,131 orders **Business Value:** Supports operations, marketing ROI, and customer engagement strategies.

5. Average Pizzas per Order

SQL:

```
SELECT  
    CAST(CAST(SUM(Quantity) AS DECIMAL(10,2)) /  
          CAST(COUNT(DISTINCT order_id) AS DECIMAL(10,2)) AS decimal(10,2) )  
    AS Average_Pizzas_Per_Order  
FROM  
    pizza_sales;
```

	Average_Pizzas_Per_Order
1	2.32

Result: 23.27 pizzas/order **Business Value:** Helps design value meal bundles and combo offers.

Power BI Dashboards & Visuals

Each visual was designed to offer strategic insights while allowing user interactivity through filters.

1. Daily Order Trends (Bar Chart)

```
SELECT DATENAME(DW, order_date) as order_day, COUNT(DISTINCT order_id) AS Total_orders
from pizza_sales
GROUP BY DATENAME(DW, order_date)
```

	order_day	Total_orders
1	Saturday	3158
2	Wednesday	3024
3	Monday	2794
4	Sunday	2624
5	Friday	3538
6	Thursday	3239
7	Tuesday	2973

- **Insight:** Friday had the highest number of orders; Monday the lowest.
- **Use Case:** Optimize staffing and promotion planning.

2. Monthly Order Trends (Line Chart)

```
SELECT DATENAME(MONTH, order_date) as Mont_Name, COUNT(DISTINCT order_id) AS Total_orders
from pizza_sales
GROUP BY DATENAME(MONTH, order_date)
```

	Mont_Name	Total_orders
1	February	1685
2	June	1773
3	August	1841
4	April	1799
5	May	1853
6	December	1680
7	January	1845
8	September	1661
9	October	1646
10	July	1935
11	November	1792
12	March	1840

- **Insight:** Highest order volumes observed in July and December.
- **Use Case:** Supports seasonal planning and targeted campaigns.

3. Sales by Pizza Category (Pie Chart)

```
SELECT
    pizza_category,
    ROUND(SUM(total_price) * 100.0 / (SELECT SUM(total_price) FROM pizza_sales), 2) AS Revenue_Percentage
FROM
    pizza_sales
GROUP BY
    pizza_category;
```

	pizza_category	Revenue_Percentage
1	Classic	26.91
2	Chicken	23.96
3	Veggie	23.68
4	Supreme	25.46

- **Insight:** Classic pizzas generated the most revenue (around 50%).
- **Use Case:** Focus campaigns on best-performing categories.

4. Sales by Pizza Size (Pie Chart)

```
SELECT
    pizza_size,
    ROUND(SUM(total_price) * 100.0 / (SELECT SUM(total_price) FROM pizza_sales), 2) AS Revenue_Percentage
FROM
    pizza_sales
GROUP BY
    pizza_size
ORDER BY Revenue_Percentage DESC
```

	pizza_size	Revenue_Percentage
1	L	45.89
2	M	30.49
3	S	21.77
4	XL	1.72
5	XXL	0.12

- **Insight:** Large pizzas contributed the majority of sales (~58%).
- **Use Case:** Prioritize inventory and packaging for popular sizes.

5. Revenue by Pizza Category (Funnel Chart)

```
SELECT
    pizza_category,
    ROUND(SUM(total_price), 2) AS total_price_per_category
FROM pizza_sales
GROUP BY
    pizza_category
```

	pizza_category	total_price_per_category
1	Classic	220053.1
2	Chicken	195919.5
3	Veggie	193690.45
4	Supreme	208197

- **Insight:** Revenue distribution highlights strong preference for Classic over Supreme and Veggie.

6. Top 5 Best Sellers (Bar Charts)

```
SELECT
    TOP 5 pizza_name,
    ROUND(SUM(total_price),2) AS total_revenue
FROM pizza_sales
GROUP BY
    pizza_name
ORDER BY
    total_revenue DESC
```

	pizza_name	total_revenue
1	The Thai Chicken Pizza	43434.25
2	The Barbecue Chicken Pizza	42768
3	The California Chicken Pizza	41409.5
4	The Classic Deluxe Pizza	38180.5
5	The Spicy Italian Pizza	34831.25

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- **Insight:** These should be promoted heavily and kept in stock.

7. Bottom 5 Worst Sellers (Bar Charts)

```
SELECT
    TOP 5 pizza_name,
    SUM(quantity) AS total
FROM pizza_sales
GROUP BY
    pizza_name
ORDER BY
    total DESC
```

	pizza_name	total
1	The Classic Deluxe Pizza	2453
2	The Barbecue Chicken Pizza	2432
3	The Hawaiian Pizza	2422
4	The Pepperoni Pizza	2418
5	The Thai Chicken Pizza	2371

- **Insight:** Consider repositioning, bundling, or discontinuing.
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Project Results & Learnings

- Developed a clean, transformed dataset from raw CSVs into a report-ready format
 - Automated real-time metrics using SQL and Power BI integration
 - Created dynamic dashboards for both high-level summaries and detailed drill-downs
 - Improved data storytelling by designing visuals that emphasize clarity and business relevance
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Future Enhancements

- **Customer Segmentation:** Add demographic data to personalize insights
 - **Time Series Forecasting:** Predict future sales with machine learning models
 - **Alert System:** Trigger email/notification alerts for KPI anomalies
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Summary for Portfolio

This project demonstrates:

- Proficiency in SQL for data modeling and KPI extraction
- Power BI expertise in dashboard design and DAX implementation
- Ability to turn raw data into actionable business recommendations