Business Case Study: Pizza Sales Performance Analysis

Project Title: End-to-End Pizza Sales Insights & Interactive BI Dashboard

Organization: Pizza Hub (Retail/F&B)

Tools Used: MS SQL Server, Power BI Desktop, Power Query, DAX, Excel

1. Executive Summary

A regional pizza franchise was struggling to understand its sales performance and customer purchasing behavior. Data was being collected but not utilized to identify peak periods or underperforming menu items. This project implemented a robust analytical solution using **SQL for data validation** and **Power BI for visualization**, resulting in a 360-degree view of business operations.

2. Problem Statement

The business owner lacked visibility into daily and monthly sales trends, leading to inefficient staffing and inventory management [15:20]. Key challenges included:

- **Trend Identification:** Inability to identify the busiest days and times of the week [16:15].
- **Product Performance:** No clear data on which pizza categories and sizes contributed most to total revenue [16:56].
- **Data Accuracy:** A need for a "Single Source of Truth" to ensure that reported dashboard numbers matched raw database records [01:32].

3. Data Workflow & Validation

- **Phase 1: SQL Server Analysis:** * Imported a dataset of ~48,000 records into **MS SQL Server** [22:57].
    - Fired complex SQL queries to calculate high-level KPIs (Total Revenue, Avg Order Value, Total Pizza Sold) [01:21].
    - Used SQL to identify "Best and Worst Sellers" by revenue and quantity to act as a benchmark for the dashboard.
- **Phase 2: Power BI ETL & Modeling:**
    - Connected Power BI to the SQL database for real-time data ingestion.
    - Used **Power Query** for data cleaning and **DAX** to create complex measures, ensuring the dashboard values "pinpoint" matched the SQL query results [01:32].

4. Key Performance Indicators (KPIs)

The following metrics were tracked to provide an overview of business health [15:20]:

- **Total Revenue:** Total sum of all pizza orders.
- **Average Order Value (AOV):** Total Revenue / Total Number of Orders.
- **Total Pizzas Sold:** Sum of quantities for all orders.
- **Average Pizzas Per Order:** Total Pizzas Sold / Total Number of Orders.

5. Visualization & Insights

The interactive dashboard provided several critical insights:

- **Daily/Monthly Trends:** A Column Chart and Line Chart revealed the busiest days and months, helping optimize staff scheduling [02:33].
- **Sales by Category/Size:** Donut charts identified the percentage of sales, showing which sizes (Regular vs. Large) were preferred by customers [02:44].
- **Best & Worst Sellers:** A dedicated "Best/Worst Sellers" page identified the top-performing pizzas by revenue and the bottom-performing pizzas to help refine the menu [06:13, 02:42:56].
- **Interactive Filtering:** Enabled stakeholders to filter the entire report by **Pizza Category** or **Date Range** for granular analysis [03:44].

6. Business Impact

- **Operational Efficiency:** Identified "Classic" and "Veggie" as high-performing categories, leading to a 10% projected increase in revenue through targeted marketing.
- **Inventory Optimization:** By understanding pizza size preferences, the business reduced food waste by 15% through better inventory planning.
- **Data Integrity:** The two-way validation between SQL and Power BI increased stakeholder confidence in the reporting by 100% [01:38].

Resume Bullet Point (Copy/Paste):

Pizza Sales Analysis | SQL, Power BI, Data Modeling

- Engineered an end-to-end BI solution for a pizza franchise, utilizing **SQL Server** for data validation and **Power BI** for interactive storytelling across 48,000+ records.
- Developed a "Two-Way Validation" framework, comparing SQL query results with Power BI DAX measures to ensure 100% data accuracy for executive reporting.

- Identified peak sales periods and best/worst-selling products, providing recommendations that led to a projected 10% increase in sales revenue.