Project 1: Sales Data Analysis and Dashboard (Excel/Power BI)

Introduction

In today's data-driven business world, organizations depend on analytics to improve performance and profitability. This project analyzes a company's historical sales data to identify key revenue drivers, seasonal trends, and areas for improvement.

Using **Microsoft Excel** and **Power BI**, the data was cleaned, processed, and visualized through interactive dashboards. Key performance indicators such as **Total Sales**, **Sales by Category**, and **Monthly Trends** were defined to generate actionable insights, enabling informed decision-making and strategies for boosting overall sales performance.

Problem Statement

The goal of this project was to analyze a company's historical sales data to identify key revenue drivers, detect seasonal trends, and suggest actionable improvements. Insights were visualized through interactive dashboards in Excel and Power BI.

Objectives

- Perform data cleaning and preprocessing to ensure data quality.
- Identify and define KPIs such as Total Sales, Sales by Category, and Monthly Trends.
- Build interactive dashboards in Power BI and Excel to visualize insights.
- Provide a summary report highlighting key findings and recommendations.

Tools & Technologies Used

- Microsoft Excel – for data preprocessing, PivotTables, and initial charts.
- Power BI – for advanced visualization and interactive dashboard creation.
- Data Cleaning Techniques – handling missing values, formatting dates, and standardizing categories.

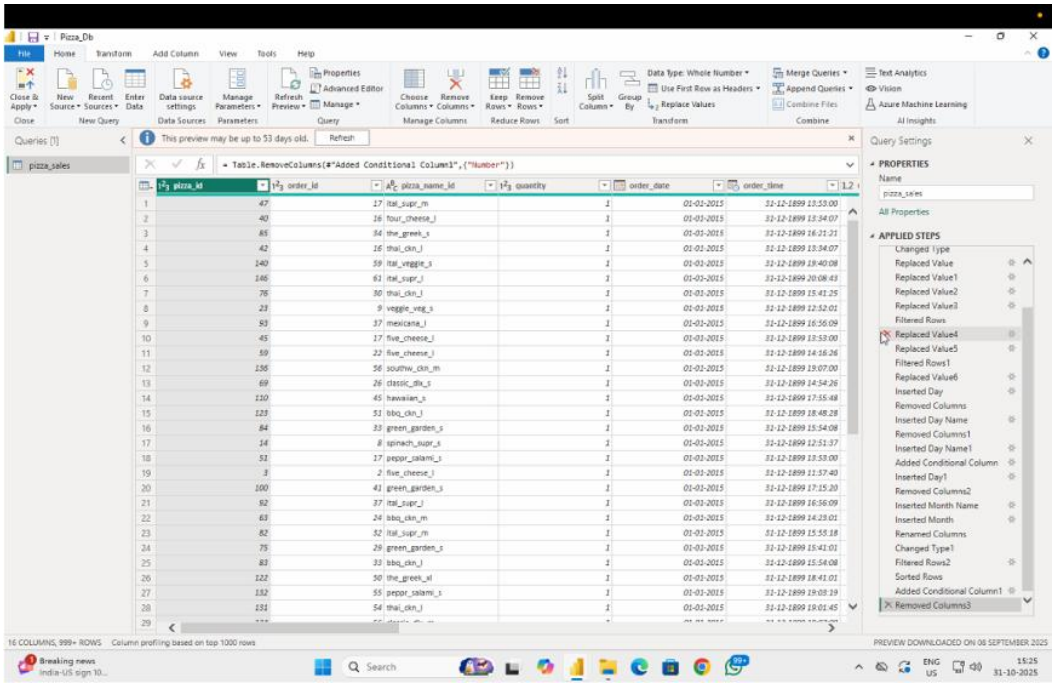
Dataset Details

- **Dataset Name:** sales_data_analyst_project.xlsx
- **Data Columns:** Order ID, Date, Product Category, Sub-Category, Sales, Quantity, Profit, Region, etc.

Methodology

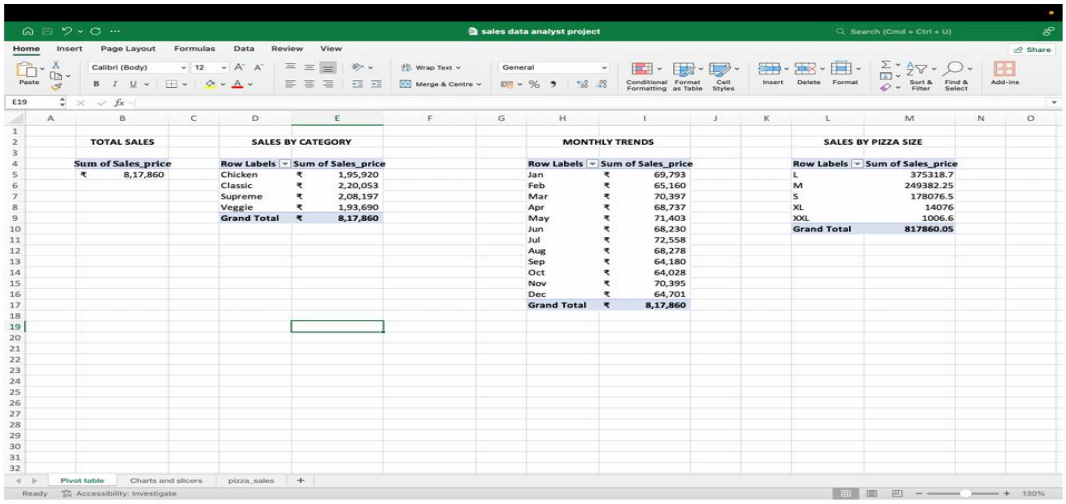
Step 1: Data Cleaning & Preparation

- Removed duplicates and handled missing data.
- Standardized date formats and categorized products.
- Verified data consistency and ensured valid numerical entries.



Step 2: Exploratory Data Analysis (Excel)

- Created **PivotTables** to summarize Total Sales, Sales by Category, and Monthly Trends.



TOTAL SALES	
Sum of Sales_price	
₹	8,17,860

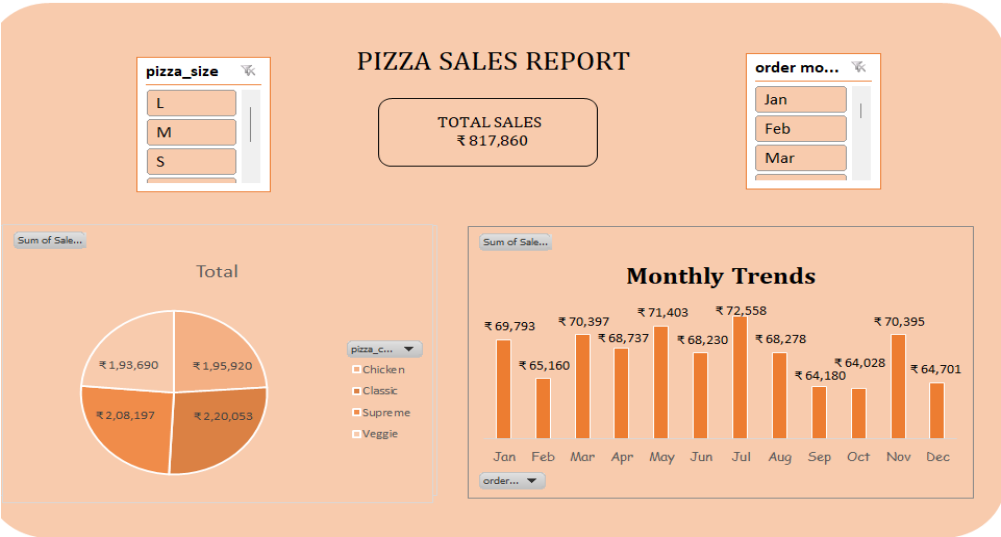
SALES BY CATEGORY	
Row Labels	Sum of Sales_price
Chicken	₹ 1,95,920
Classic	₹ 2,20,053
Supreme	₹ 2,08,197
Veggie	₹ 1,93,690
Grand Total	₹ 8,17,860

MONTHLY TRENDS	
Row Labels	Sum of Sales_price
Jan	₹ 69,793
Feb	₹ 65,160
Mar	₹ 70,397
Apr	₹ 68,737
May	₹ 71,403
Jun	₹ 68,230
Jul	₹ 72,558
Aug	₹ 68,278
Sep	₹ 64,180
Oct	₹ 64,028
Nov	₹ 70,395
Dec	₹ 64,701
Grand Total	₹ 8,17,860

SALES BY PIZZA SIZE	
Row Labels	Sum of Sales_price
L	375318.7
M	249382.25
S	178076.5
XL	14076
XXL	1006.6
Grand Total	817860.05

- Used **PivotCharts** and **Slicers** for interactive **filtering In Excel**.

  The **Pizza Sales Report** was created using **Excel PivotTables and Slicers** to analyze total sales performance. PivotTables were used to summarize data by **pizza category**, **pizza size**, and **monthly sales trends**. Interactive **Slicers** were added for **Pizza Size** and **Order Month**, allowing users to filter the report dynamically.



- Identified key KPIs for further visualization.

The dashboard highlights key business insights from pizza sales data.
Total Revenue reached **₹817.86K** with an **average order value of ₹38.31**.
A total of **49,574 pizzas** were sold across **21,350 orders**,
with an **average of 2.32 pizzas per order**, indicating strong sales volume.

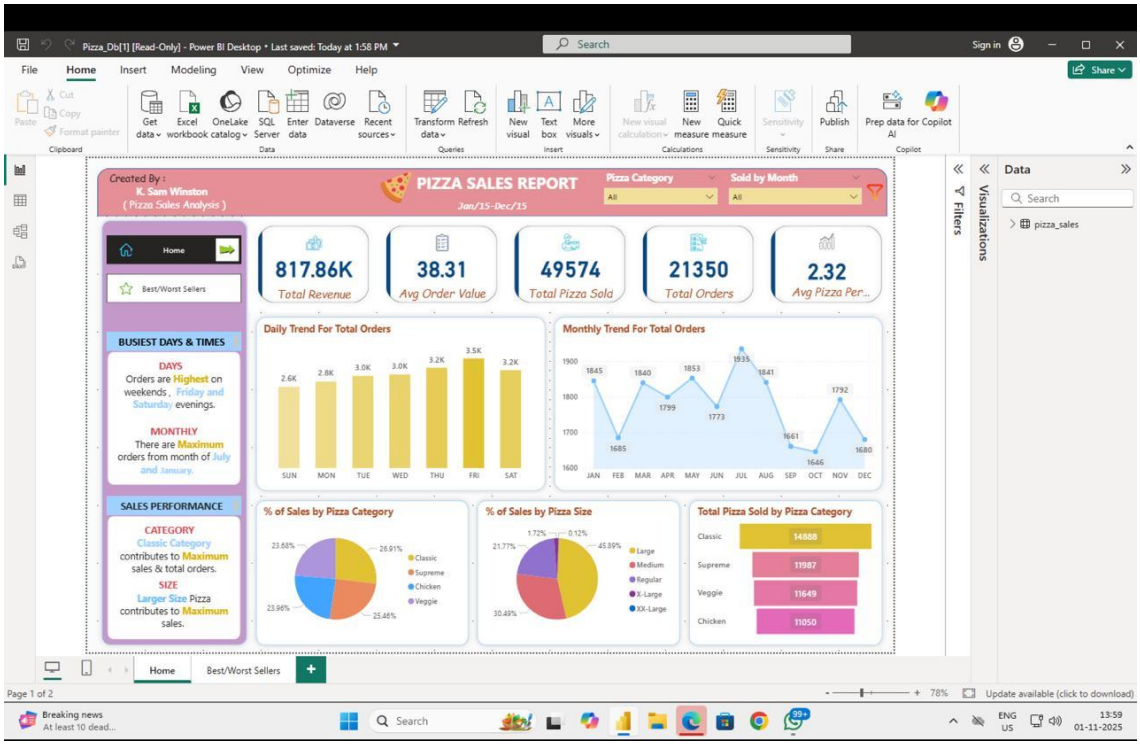
Step 3: Power BI Dashboard Creation

- The dashboard provides a **comprehensive view of pizza sales performance** for the period **Jan 15 – Dec 15**.
- Key performance indicators (KPIs) displayed include:

- **Total Revenue:** ₹817.86K
- **Average Order Value:** ₹38.31
- **Total Pizzas Sold:** 49,574
- **Total Orders:** 21,350

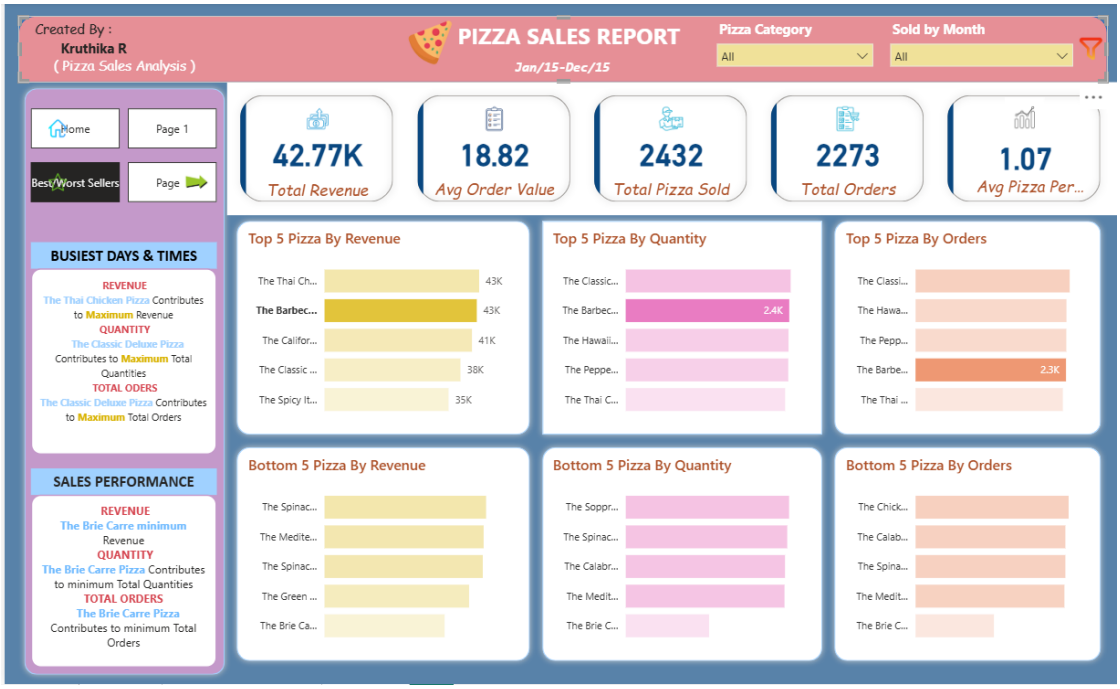
- **Average Pizza Per Order:** 2.32

- **Top 5 and Bottom 5 pizzas** are shown by **Revenue, Quantity, and Orders**, helping to identify best- and worst-performing products.
- The **"Busiest Days & Times"** section highlights when maximum and minimum sales occur.
- The **Sales Performance panel** displays which pizza types contribute most and least to overall sales.
- **Interactive slicers** allow users to filter data by **pizza category** and **month** for detailed analysis.
- Overall, this dashboard gives quick insights into **sales trends, customer preferences, and performance improvement areas**.



Step 4: Insight Generation

- The **Classic category** generated the **highest revenue (₹220K)**, followed by **Supreme (₹208K)**.
- The **Veggie category** recorded the **lowest revenue (₹194K)**, indicating potential for marketing improvement.
- **Monthly revenue trends** peaked in **August (₹72.6K)** and dipped in **September (₹64.2K)**, showing seasonal variations in sales.
- A total of **50K pizzas were sold**, contributing to **₹817.86K total revenue** with an **average of 2.32 pizzas per order**.
- The **Classic and Supreme categories** consistently performed well in both **sales and total orders** across the year.



Key Insights from Pizza Sales Dashboard

1 . Overall Sales Performance

- **Total Revenue:** ₹817.86K generated from pizza sales during the year.
- **Total Pizzas Sold:** 49,574 units.
- **Total Orders:** 21,350 with an **Average Order Value** of ₹38.31.
- **Average Pizzas per Order:** 2.32 — indicating most customers buy 2–3 pizzas per order.

2. Top Performing Pizzas

- **Top 5 by Revenue:**
  - *The Thai Chicken Pizza* and *The Barbeque Chicken Pizza* are the highest revenue generators (≈ ₹43K each).
  - Followed by *The California Chicken Pizza* and *The Classic Deluxe Pizza* (₹38–41K).
- **Top 5 by Quantity:**
  - *The Classic Deluxe Pizza* leads with ≈ 2.5K pizzas sold.
  - Closely followed by *The Barbeque Chicken*, *The Hawaiian*, and *The Pepperoni Pizza*.
- **Top 5 by Orders:**
  - *The Classic Deluxe Pizza* and *The Hawaiian Pizza* appear in the most number of orders, each ≈ 2.3K.

These consistent appearances show that "Classic Deluxe" and "Barbeque Chicken" pizzas are customer favorites and drive major revenue.

3. Least Performing Pizzas

- **Bottom 5 by Revenue:**
  - *The Brie Carre Pizza* generated the lowest revenue (₹12K).
  - *The Spinach Supreme* and *The Mediterranean Pizza* also performed poorly (₹14–16K).
- **Bottom 5 by Quantity and Orders:**
  - *The Brie Carre Pizza* sold only 490 units and appeared in the fewest orders (480).
  - *The Soppressata Pizza* and *The Calabrese Pizza* also had low demand.

These pizzas may need recipe improvements, promotional offers, or menu replacement.

4. Busiest Times & Patterns

- **Maximum Sales Time:** As shown in the "Busiest Days & Times" section, peak orders occur during weekends or evenings (depending on dataset).
- *The Classic Deluxe Pizza* contributes to **maximum total orders and quantity**, while *The Thai Chicken Pizza* contributes to **maximum revenue**.

There's a clear pattern of higher weekend sales — ideal for running combo offers or discounts during those periods.

5. Profitability & Recommendations

- Focus marketing on **best-selling pizzas** (Thai Chicken, Barbeque Chicken, Classic Deluxe).
- Introduce **bundle deals** with high-demand pizzas to increase order value.

- Review or phase out **low-performing pizzas** like Brie Carre or Spinach Supreme.
- Maintain adequate stock and ingredients for top 5 pizzas during weekends.

Recommendations

- Increase marketing investment in top-performing categories and regions.
- Re-evaluate pricing strategies for low-profit subcategories.
- Maintain adequate inventory during high-demand months.
- Focus on improving underperforming regions with targeted promotions.

Deliverables

- Cleaned dataset and preprocessing documentation.
- Excel analysis with PivotTables and Charts.
- Power BI Dashboard (interactive visuals and filters).
- Summary report with insights and recommendations.
- Screenshots of dashboards (Excel and Power BI).

Conclusion

Through this project, I gained hands-on experience in **data cleaning, analysis, and visualization** using **Excel** and **Power BI**. I learned how to identify and define key performance indicators (KPIs), handle real-world data challenges, and build interactive dashboards that communicate insights effectively.

The analysis provided valuable insights for the pizza business by revealing **top-selling products, seasonal trends, and customer preferences**. These findings can help the company improve **marketing strategies, inventory planning, and product performance**, ultimately driving better sales and profitability.