**Pizza Sales Report using SQL and Power Bi**

*Used Microsoft SQL Server (Azure Data Studio)*

In the csv file, order\_date column is in “dd-mm-yy” format and so changed it to “mm-dd-yy” using python code.

import pandas as pd

from google.colab import files

# Step 1: Upload your CSV file

uploaded = files.upload()

# Step 2: Read the CSV file into a DataFrame

import io

df = pd.read\_csv(io.BytesIO(uploaded['pizza\_sales.csv']))

# Step 3: Convert the Date Format

# Assuming the column with dates is named 'order\_date' and is in the format 'dd-MM-yyyy'

df['order\_date'] = pd.to\_datetime(df['order\_date'], format='%d-%m-%Y')

df['order\_date'] = df['order\_date'].dt.strftime('%m-%d-%Y')

# Step 4: Save the Modified DataFrame to a New CSV file

# Save the modified DataFrame to a new CSV file

df.to\_csv('modified\_file.csv', index=False)

# Step 5: Download the modified CSV file

files.download('modified\_file.csv')

After this conversion uploaded it to the DB-Project.

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* To find the total revenue:

select SUM(total\_price) AS Total\_Revenue

from pizza\_sales;

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* Finding the average order value, in here order must be counted with unique values and so use DISTINCT.

select SUM(total\_price) / COUNT(DISTINCT order\_id) AS AVG\_Ord\_val

from pizza\_sales;

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* Total Pizzas Sold

select SUM(quantity) AS tot\_pizzas\_sold

from pizza\_sales;

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* Total Orders

select COUNT(DISTINCT order\_id) AS tot\_orders

from pizza\_sales;

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* Average Pizzas per Order

select CAST(CAST(SUM(quantity) AS DECIMAL(10,2)) /

CAST(COUNT(DISTINCT order\_id) AS DECIMAL(10,2)) AS DECIMAL(10,2))

AS Avg\_Pizzas\_per\_order

from pizza\_sales;

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* Daily Trend for total orders

SELECT DATENAME(DW, order\_date) AS order\_day, COUNT(DISTINCT order\_id) AS total\_orders

FROM pizza\_sales

GROUP BY DATENAME(DW, order\_date);

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* Monthly Trend for total orders

SELECT DATENAME(MONTH, order\_date) as Month, COUNT(DISTINCT order\_id) as Total\_Orders

from pizza\_sales

GROUP BY DATENAME(MONTH, order\_date)

ORDER BY Total\_Orders DESC;

A screenshot of a data table

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% of Pizza sales by Category

SELECT pizza\_category as Pizza\_Category, CAST(SUM(total\_price) AS DECIMAL(10,2)) as Total\_Revenue,

CAST(SUM(total\_price) \* 100 / (SELECT SUM(total\_price) from pizza\_sales) AS DECIMAL(10,2)) AS Percentage\_Category

FROM pizza\_sales

GROUP BY pizza\_category;

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% of Pizza sales by Size

SELECT pizza\_size as Pizza\_Size, CAST(SUM(total\_price) AS DECIMAL(10,2)) as Total\_Revenue,

CAST(SUM(total\_price) \* 100 / (SELECT SUM(total\_price) from pizza\_sales) AS DECIMAL(10,2)) AS Percentage\_Category

FROM pizza\_sales

GROUP BY pizza\_size;

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Total Pizzas sold by pizza category

SELECT pizza\_category AS Pizza\_Category, SUM(quantity) as Total\_Quantity\_Sold

FROM pizza\_sales

WHERE MONTH(order\_date) = 2

GROUP BY pizza\_category

ORDER BY Total\_Quantity\_Sold DESC;

A screenshot of a computer

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Top 5 pizzas by Revenue

SELECT Top 5 pizza\_name AS Pizza, SUM(total\_price) AS Total\_Revenue

FROM pizza\_sales

GROUP BY pizza\_name

ORDER BY Total\_Revenue DESC;

A screenshot of a menu

Description automatically generated

Top 5 pizzas by Quantity

SELECT Top 5 pizza\_name AS Pizza, SUM(quantity) AS Total\_Pizza\_Sold

FROM pizza\_sales

GROUP BY pizza\_name

ORDER BY Total\_Pizza\_Sold DESC;

A screenshot of a menu

Description automatically generated

Top 5 Pizzas by Total Orders

SELECT Top 5 pizza\_name AS Pizza, COUNT(DISTINCT order\_id) AS Total\_Orders

FROM pizza\_sales

GROUP BY pizza\_name

ORDER BY Total\_Orders DESC;

A screenshot of a menu

Description automatically generated

Bottom 5 Pizzas by Revenue

SELECT Top 5 pizza\_name AS Pizza, SUM(total\_price) AS Total\_Revenue

FROM pizza\_sales

GROUP BY pizza\_name

ORDER BY Total\_Revenue ASC;

A screenshot of a computer

Description automatically generated

Bottom 5 pizzas by Quantity

SELECT TOP 5 pizza\_name, SUM(quantity) AS Total\_Pizza\_Sold

FROM pizza\_sales

GROUP BY pizza\_name

ORDER BY Total\_Pizza\_Sold ASC

A screenshot of a menu

Description automatically generated

Bottom 5 Pizzas by Total Orders

SELECT Top 5 pizza\_name AS Pizza, COUNT(DISTINCT order\_id) AS Total\_Orders

FROM pizza\_sales

GROUP BY pizza\_name

ORDER BY Total\_Orders ASC;

A screenshot of a menu

Description automatically generated

***PowerBi Report***

# Pizza Sales Report - Dashboard

### Dashboard Link : https://app.powerbi.com/groups/me/reports/a44ad9b6-7706-4ec7-9ee2-727cd017a8e0/ReportSection

Certainly! Here's the revised problem statement with added steps followed for creating the dashboard:

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#Problem Statement: Optimizing Pizza Sales Analysis through Power BI Dashboard

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Background:

In today's highly competitive food industry, understanding customer preferences and sales trends is crucial for the success of any restaurant business. Our hypothetical pizza restaurant faces the challenge of efficiently analyzing sales data to make informed decisions and drive growth. With vast amounts of transactional data accumulated over time, there is a pressing need to harness the power of data analytics to gain actionable insights.

Objective:

The objective of this project is to develop a comprehensive Power BI dashboard tailored to the needs of the pizza restaurant owner. This dashboard will provide a user-friendly interface for analyzing sales data, identifying trends, and making data-driven decisions to optimize business performance.

Key Challenges:

1. Data Complexity: The restaurant collects extensive data on sales transactions, including order details, customer preferences, and sales performance across different pizza categories and sizes.

2. Lack of Insights: Without a centralized system for data analysis, the restaurant owner struggles to extract meaningful insights from the data, leading to missed opportunities for improvement and growth.

3. Inefficient Decision-Making: The absence of real-time analytics hampers the owner's ability to respond promptly to changing market trends and customer preferences, resulting in suboptimal decision-making.

###Steps Followed for Creating the Dashboard:

1. Data Preprocessing:

- Adjusted the CSV file to separate the 'order\_date' column into new columns, including 'order\_month\_number', 'order\_day', 'order\_month\_name', and 'order\_day\_name', for enhanced analysis.

2. Data Transformation:

- Cleansed and transformed the data to ensure accuracy and consistency in insights.

3. Visualization Techniques:

- Implemented various visualization techniques including bar charts, doughnut charts, area charts, and funnel charts to effectively represent sales trends and customer preferences.

4. Key Performance Indicators (KPIs):

- Added KPIs as cards to highlight important metrics such as total revenue, average order value, and total pizzas sold, providing quick snapshots of business performance.

###Expected Outcomes:

1. Improved Business Performance: By gaining insights into sales trends, customer preferences, and operational efficiency, the restaurant owner will be better equipped to optimize business strategies and increase profitability.

2. Enhanced Decision-Making: Real-time analytics and interactive visualizations will enable the owner to make data-driven decisions with confidence, leading to more effective resource allocation and marketing strategies.

3. Streamlined Operations: With a centralized platform for data analysis, the restaurant can streamline operations, identify areas for improvement, and enhance the overall customer experience.

###Conclusion:

The development of a Power BI dashboard for analyzing pizza sales data represents a significant opportunity for the restaurant to leverage the power of data analytics to drive growth and success. By addressing key challenges and providing actionable insights, the dashboard will empower the owner to make informed decisions and stay competitive in the dynamic food industry landscape.

###What can be inferred from the dashboard?

From the Pizza Sales Report for January 2015 to December 2015, several insights can be inferred:

1. Revenue and Sales Performance:

- The total revenue for the period was $817.86K, with an average order value of $38.31. This indicates a healthy revenue stream and average order value.

- The Classic category of pizzas contributed the most to total revenue, sales, and total orders. This suggests that Classic pizzas are popular among customers and are driving significant sales.

- Total Revenue: $817,860

- Average Order Value: $38.31

- Total Pizzas Sold: 49,574

- Total Orders: 21,350

- Average Pizzas per Order: 2.32

2. Best and Worst Sellers:

- The Thai Chicken Pizza was the best seller in terms of revenue, while the Classic Deluxe Pizza led in total quantities and total orders. On the other hand, the Brie Care pizza was the worst seller, contributing minimally to revenue, quantity, and orders. This highlights the importance of understanding customer preferences and adjusting the product offerings accordingly.

- Top 5 Pizzas by Revenue:

- The Thai Chicken Pizza: $43,000

- The Classic Deluxe Pizza: $38,000

- The Spicy Italian Pizza: $35,000

- Bottom 5 Pizzas by Revenue:

- The Brie Care Pizza: $12,000

3. Pizza Category and Size Insights:

- The report shows that the Classic category accounted for the highest percentage of sales, indicating its popularity among customers. Additionally, large-sized pizzas were the most preferred size, contributing significantly to total sales. Understanding these preferences can help in optimizing the product mix and marketing strategies.

- Total Pizzas Sold by Pizza Category:

- Classic: 14,888

- Supreme: 11,987

- Veggie: 11,649

- Chicken: 11,050

- % of Sales by Pizza Size:

- Large: 45.89%

- Medium: 30.49%

- Regular: 21.77%

4. Trends in Orders:

- The daily trend for total orders shows variations throughout the week, with higher orders on Fridays and Saturdays. This suggests that weekends are peak times for pizza sales. Moreover, the monthly trend indicates that July and January had the highest number of orders. Understanding these trends can help in staffing and inventory management to meet customer demand effectively.

- Daily Trend for Total Orders:

- Highest: Thursday (3,500 orders)

- Lowest: Monday (2,600 orders)

- Monthly Trend for Total Orders:

- Highest: July (1,935 orders)

- Lowest: April (1,646 orders)

5. Busiest Days and Times:

- Orders are highest on weekends, particularly on Friday and Saturday evenings. This information can be utilized to plan promotions or special offers during peak times to maximize sales. Additionally, knowing the busiest months, such as July and January, can help in preparing for increased demand during these periods.

- Busiest Days: Weekends (Friday/Saturday evenings)

- Busiest Months: July and January

In conclusion, the Pizza Sales Report provides valuable insights into revenue, sales performance, customer preferences, and ordering trends. By leveraging these insights, businesses can make informed decisions to enhance customer satisfaction, optimize sales strategies, and drive overall profitability.