

Pizza Sales Data Analysis Report

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1. Introduction

Project Overview

This report aims to analyze key indicators for our pizza sales data to gain insights into our business performance. The analysis will help in understanding customer behavior, sales trends, and identifying areas for improvement.

Objectives

- Calculate and analyze key performance indicators (KPIs).
- Visualize various aspects of the pizza sales data to identify trends and patterns.
- Provide actionable insights and recommendations based on the analysis.

2. Data Acquisition and Preparation

Data Source

The data used for this analysis includes pizza sales records, containing information about orders, prices, quantities, and categories.

Data Cleaning

Handling Missing Values: Any missing values were filled or removed based on relevance and impact.

Data Types: Ensured correct data types for all columns.

Outliers: Identified and handled outliers to ensure accurate analysis.

Table Arrangement: Data tables were arranged and formatted to look perfect, facilitating easier analysis and visualization.

Then I imported the csv file in the sql server

SQLQuery1.sql - SU...Y\sunnylalam (75))*

```
SELECT * FROM pizza_sales_portfolio
```

100 %

Results Messages

	pizza_id	order_id	pizza_name_id	quantity	order_date	order_time	unit_price	total_price
1	1	1	hawaiian_m	1	2015-01-01	11:38:36.0000000	13.25	13.25
2	2	2	classic_dlx_m	1	2015-01-01	11:57:40.0000000	16	16
3	3	2	five_cheese_l	1	2015-01-01	11:57:40.0000000	18.5	18.5
4	4	2	ital_supr_l	1	2015-01-01	11:57:40.0000000	20.75	20.75
5	5	2	mexicana_m	1	2015-01-01	11:57:40.0000000	16	16
6	6	2	thai_ckn_l	1	2015-01-01	11:57:40.0000000	20.75	20.75
7	7	3	ital_supr_m	1	2015-01-01	12:12:28.0000000	16.5	16.5
8	8	3	prsc_argla_l	1	2015-01-01	12:12:28.0000000	20.75	20.75
9	9	4	ital_supr_m	1	2015-01-01	12:16:31.0000000	16.5	16.5
10	10	5	ital_supr_m	1	2015-01-01	12:21:30.0000000	16.5	16.5
11	11	6	bbq_ckn_s	1	2015-01-01	12:29:36.0000000	12.75	12.75
12	12	6	the_greek_s	1	2015-01-01	12:29:36.0000000	12	12
13	13	7	spinach_sup...	1	2015-01-01	12:50:37.0000000	12.5	12.5
14	14	8	spinach_sup...	1	2015-01-01	12:51:37.0000000	12.5	12.5
15	15	9	classic_dlx_s	1	2015-01-01	12:52:01.0000000	12	12

3.
Key

3. Performance Indicators (KPIs)

1. **Total Revenue:** The sum of the total price of all pizza orders.

PizzaSalesProject -...Y\sunnylalam (107))*

```

SELECT * FROM pizza_sales_portfolio
--SANYASI NAIDU LALAM--
--Total Revenue: The sum of the total price of all pizza orders.
SELECT SUM(total_price) AS Total_Revenue from pizza_sales_portfolio
--Average Order Value: The average amount spent per order,

```

100 %

Results Messages

	Total_Revenue
1	817860.05083847

2. Average Order Value: The average amount spent per order, calculated by dividing the total revenue by the total number of orders.

```
--Average Order Value: The average amount spent per order,  
--calculated by dividing the total revenue by the total number of orders.  
SELECT SUM(total_price) / COUNT(DISTINCT order_id) As Avg_order_value  
from pizza_sales_portfolio
```

100 %	
Results Messages	
	Avg_order_value
1	38.3072623343546

3. Total Pizzas Sold: The sum of the quantities of all pizzas sold.

```
--SANYASI NAIDU LALAM--  
--Total Pizzas Sold: The sum of the quantities of all pizzas sold.  
SELECT SUM(quantity) as Total_Pizzas_Sold from pizza_sales_portfolio
```

100 %	
Results Messages	
	Total_Pizzas_Sold
1	49574

4. Total Orders: The total number of orders placed.

```
--SANYASI NAIDU LALAM--  
-- Total Orders: The total number of orders placed.  
SELECT COUNT(DISTINCT order_id) AS Total_order  
FROM pizza_sales_portfolio
```

100 %	
Results Messages	
	Total_order
1	21350

5. Average Pizzas Per Order: The average number of pizzas sold per order, calculated by dividing the total number of pizzas sold by the total number of orders.

```
--SANYASI NAIDU LALAM--
-- Average Pizzas Per Order: The average number of pizzas sold per order,
--calculated by dividing the total number of pizzas sold by the total number of orders.
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_portfolio
```

Avg_pizzas_per_order
1 2.32

6. Total Revenue by Pizza Category:How much revenue is generated from each pizza category (e.g., Veg, Non-Veg, Vegan)?

```
--SANYASI NAIDU LALAM--
--Total Revenue by Pizza Category:
--How much revenue is generated from each pizza category
--(e.g., Veg, Non-Veg, Vegan)?
SELECT pizza_category, SUM(total_price) AS total_revenue
FROM pizza_sales_portfolio GROUP BY pizza_category;
```

	pizza_category	total_revenue
1	Classic	220053.100021362
2	Chicken	195919.5
3	Veggie	193690.451004028
4	Supreme	208196.99981308

7. Most Popular Pizza Size: Which pizza size (e.g., Small, Medium, Large) is ordered the most frequently?

```
--SANYASI NAIDU LALAM--
--Most Popular Pizza Size:
--Which pizza size (e.g: S, M, L) is ordered the most frequently?
SELECT pizza_size, COUNT(*) AS size_count FROM pizza_sales_portfolio
GROUP BY pizza_size ORDER BY size_count DESC;
```

	pizza_size	size_count
1	L	18526
2	M	15385
3	S	14137
4	XL	544
5	XXL	28

8. Most Popular Pizza: Top 10: Which specific pizza (pizza name) has the highest number of orders?

```
--SANYASI NAIDU LALAM--
--Most Popular Pizza: Top 10
--Which specific pizza (pizza name) has the highest number of orders?
SELECT TOP 10 pizza_name, COUNT(*) AS order_count
FROM pizza_sales_portfolio
GROUP BY pizza_name
ORDER BY order_count DESC;
```

	pizza_name	order_count
1	The Classic Deluxe Pizza	2416
2	The Barbecue Chicken Pizza	2372
3	The Hawaiian Pizza	2370
4	The Pepperoni Pizza	2369
5	The Thai Chicken Pizza	2315
6	The California Chicken Pizza	2302
7	The Spicy Italian Pizza	1887
8	The Sicilian Pizza	1887
9	The Southwest Chicken Pizza	1885
10	The Four Cheese Pizza	1850

9. Peak Order Time: What is the most common time of day for orders to be placed?

```
SQLQuery1.sql - SU...Y\sunnylalam (75)*
--SANYASI NAIDU LALAM--
--Peak Order Time:
--What is the most common time of day for orders to be placed?
SELECT TOP 10 order_time, COUNT(*) AS order_count
FROM pizza_sales_portfolio
GROUP BY order_time
ORDER BY order_count DESC;
```

	order_time	order_count
1	12:32:00.0000000	26
2	11:59:10.0000000	24
3	12:26:04.0000000	23
4	12:53:29.0000000	23
5	12:52:36.0000000	23
6	13:31:27.0000000	21
7	11:50:01.0000000	21
8	11:57:15.0000000	21
9	12:25:12.0000000	21
10	13:04:13.0000000	20

10. Average Order Value by Pizza Category: What is the average order value for each pizza category?

```
--SANYASI NAIDU LALAM--
--Average Order Value by Pizza Category:
--What is the average order value for each pizza category?
SELECT pizza_category, SUM(total_price) / COUNT(DISTINCT order_id)
AS average_order_value
FROM pizza_sales_portfolio GROUP BY pizza_category;
```

	pizza_category	average_order_value
1	Classic	20.2645823760348
2	Chicken	22.9521438612933
3	Veggie	21.6631753723329
4	Supreme	22.9165657471744

11. Total Quantity of Each Pizza Sold: How many of each specific pizza (pizza name) have been sold?

```
SQLQuery1.sql - SU...Y\sunnylalam (75))* X
--SANYASI NAIDU LALAM--
--Total Quantity of Each Pizza Sold:
--How many of each specific pizza (pizza name) have been sold?
SELECT TOP 10
    pizza_name,
    SUM(quantity) AS total_quantity_sold
FROM
    pizza_sales_portfolio
GROUP BY
    pizza_name
ORDER BY
    total_quantity_sold DESC;
```

	pizza_name	total_quantity_sold
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
6	The California Chicken Pizza	2370
7	The Sicilian Pizza	1938
8	The Spicy Italian Pizza	1924
9	The Southwest Chicken Pizza	1917
10	The Big Meat Pizza	1914

4. Data Visualization

1. Daily Trend for Total Orders:

I Created a bar chart that displays the daily trend of total orders over a specific time period. This chart will help us identify any patterns or fluctuations in order volumes on a daily basis.

Steps:

1. Load the data into Power BI.
2. Create a bar chart.
3. Set the X-axis to "Order Day".
4. Set the Y-axis to "Total Orders".

SQLQuery1.sql - SU...Y\sunnylalam (75))*

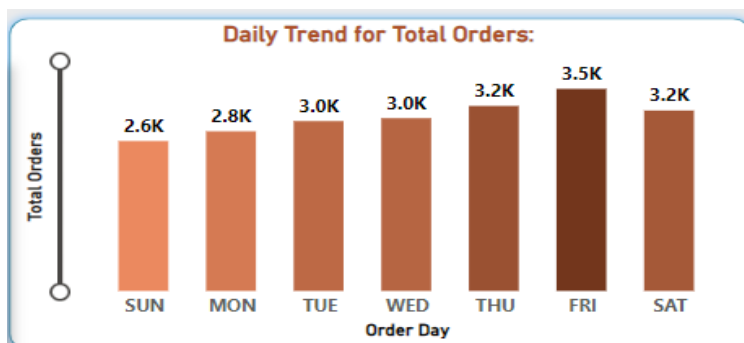
```
--SANYASI NAIDU LALAM--  
-- FOR CHATRS REQUIREMENTS  
-- Daily Trend for Total Orders:  
SELECT DATENAME(DW, order_date) AS day_day,  
COUNT(DISTINCT order_id) AS Total_orders  
FROM pizza_sales_portfolio  
GROUP BY DATENAME(DW, order_date)
```

100 %

Results Messages

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

PowerBI Visualization:



2. Monthly Trend for Total Orders

Create a line chart that illustrates the monthly trend of total orders throughout the year. This chart will allow us to identify peak months or periods of high order activity.

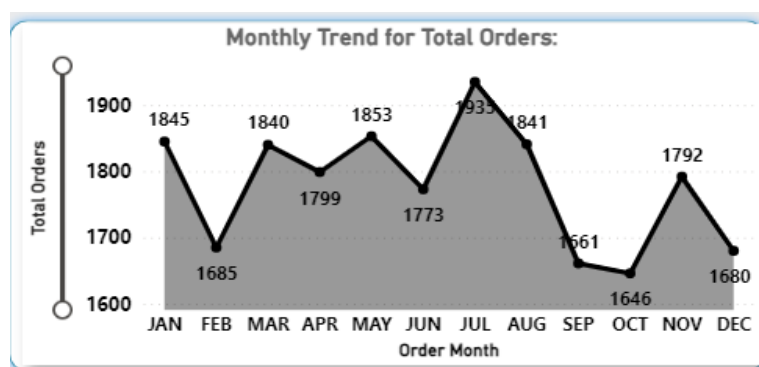
Steps:

1. Load the data into Power BI.
2. Create a line chart.
3. Set the X-axis to "Month".
4. Set the Y-axis to "Total Orders".

```
SELECT DATENAME(MONTH, order_date) AS Month_name,  
       COUNT(DISTINCT order_id) AS Total_orders  
FROM pizza_sales_portfolio  
GROUP BY DATENAME(MONTH, order_date)  
ORDER BY Total_orders DESC
```

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

PowerBI Visualization:



3. Percentage of Sales by Pizza Category

I Created a pie chart that shows the distribution of sales across different pizza categories. This chart will provide insights into the popularity of various pizza categories and their contribution to overall sales.

Steps:

1. Load the data into Power BI.
2. Create a pie chart.
3. Set the values to "Total Sales".
4. Set the legend to "Pizza Category".

SQLQuery1.sql - SU...Y\sunnylalam (75))*

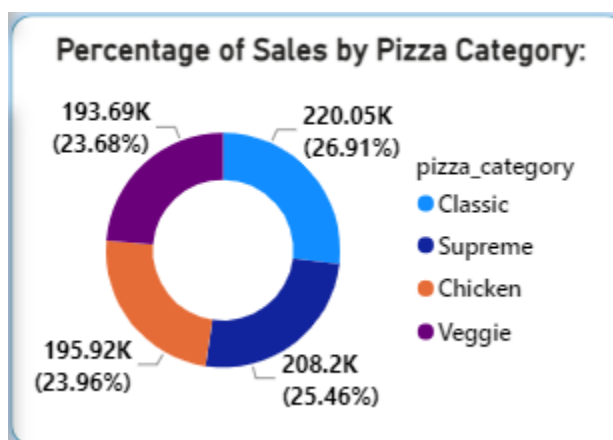
```
--SANYASI NAIDU LALAM--  
--Percentage of Sales by Pizza Category:  
SELECT pizza_category,  
SUM(total_price)*100 / (SELECT SUM(total_price)  
FROM pizza_sales_portfolio) AS PCT_Total_sales  
FROM pizza_sales_portfolio  
GROUP BY pizza_category
```

100 %

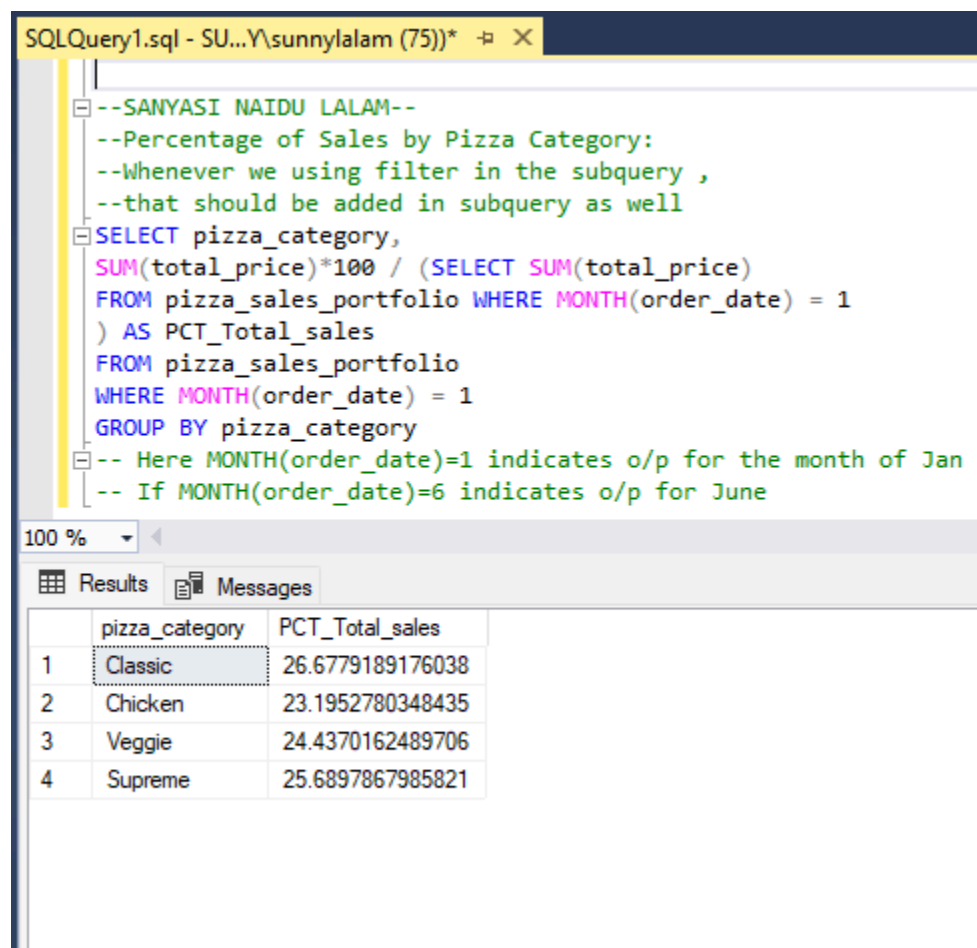
Results Messages

	pizza_category	PCT_Total_sales
1	Classic	26.9059602306976
2	Chicken	23.9551375322885
3	Veggie	23.6825910258677
4	Supreme	25.4563112111462

PowerBI Visualization:



Percentage of Sales by Pizza Category: For month of January



The screenshot shows a SQL query window with the following text:

```
--SANYASI NAIDU LALAM--  
--Percentage of Sales by Pizza Category:  
--Whenever we using filter in the subquery ,  
--that should be added in subquery as well  
SELECT pizza_category,  
SUM(total_price)*100 / (SELECT SUM(total_price)  
FROM pizza_sales_portfolio WHERE MONTH(order_date) = 1  
 ) AS PCT_Total_sales  
FROM pizza_sales_portfolio  
WHERE MONTH(order_date) = 1  
GROUP BY pizza_category  
-- Here MONTH(order_date)=1 indicates o/p for the month of Jan  
-- If MONTH(order_date)=6 indicates o/p for June
```

Below the query, the 'Results' tab is active, displaying a table with 2 columns: 'pizza_category' and 'PCT_Total_sales'. The table contains 4 rows of data.

	pizza_category	PCT_Total_sales
1	Classic	26.6779189176038
2	Chicken	23.1952780348435
3	Veggie	24.4370162489706
4	Supreme	25.6897867985821

4. Percentage of Sales by Pizza Size

I Generated a pie chart that represents the percentage of sales attributed to different pizza sizes. This chart will help us understand customer preferences for pizza sizes and their impact on sales.

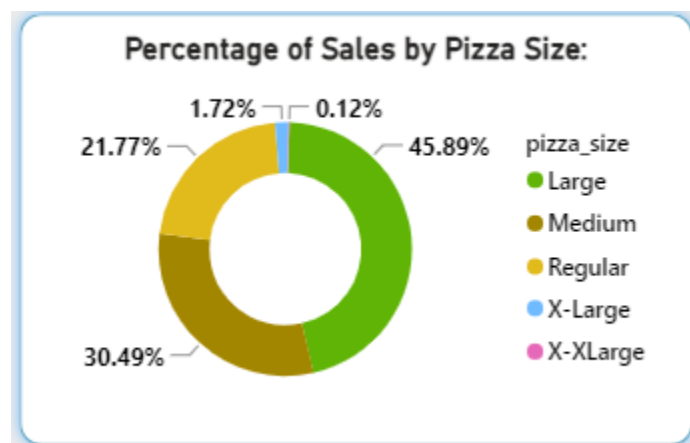
Steps:

1. Load the data into Power BI.
2. Create a pie chart.
3. Set the values to "Total Sales".
4. Set the legend to "Pizza Size".

```
--SANYASI NAIDU LALAM--
--Percentage of Sales by Pizza Size:
SELECT pizza_size,
CAST(SUM(total_price) AS DECIMAL(10,2)) AS Total_sales,
CAST(SUM(total_price)*100/
(SELECT SUM(total_price)
FROM pizza_sales_portfolio) AS DECIMAL (10,2)
) AS PCT_Total_sales
FROM pizza_sales_portfolio
GROUP BY pizza_size
ORDER BY PCT_Total_sales DESC
```

	pizza_size	Total_sales	PCT_Total_sales
1	L	375318.70	45.89
2	M	249382.25	30.49
3	S	178076.50	21.77
4	XL	14076.00	1.72
5	XXL	1006.60	0.12

PowerBI Visualization:



5. Top 5 Best Sellers by Revenue, Total Quantity, and Total Orders

I created a bar chart highlighting the top 5 best-selling pizzas based on revenue, total quantity, and total orders. This chart will help us identify the most popular pizza options.

Steps:

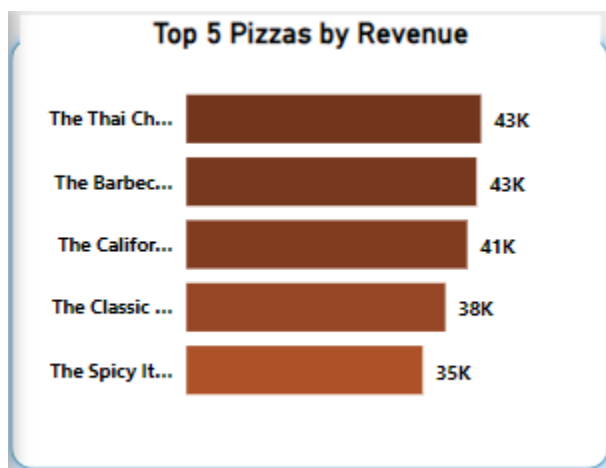
1. Load the data into Power BI.
2. Create a bar chart.
3. Set the values to "Revenue", "Total Quantity", and "Total Orders".

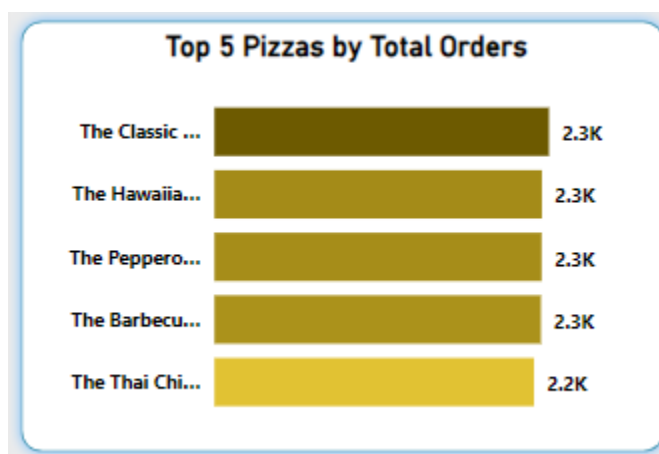
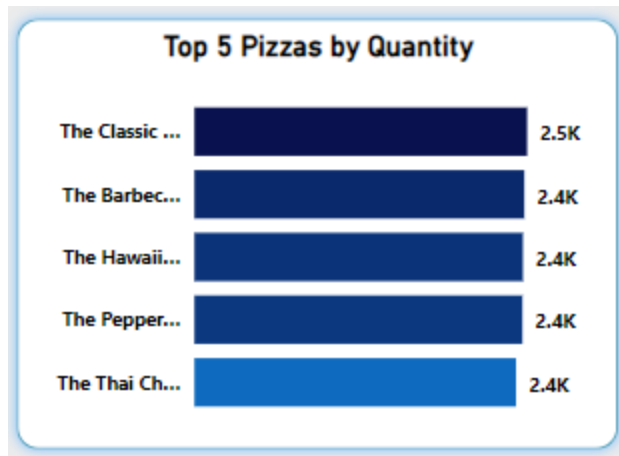
4. Set the legend to "Pizza Name".
5. Apply a filter to show the top 5 items.

```
--SANYASI NAIDU LALAM--
--Top 5 Best Sellers by Revenue,
--Total Quantity, and Total Orders
SELECT TOP 5
    pizza_name,
    SUM(total_price) AS total_revenue,
    SUM(quantity) AS total_quantity_sold,
    COUNT(*) AS total_orders
FROM pizza_sales_portfolio
GROUP BY pizza_name
ORDER BY total_revenue DESC, total_quantity_sold DESC,
total_orders DESC;
```

	pizza_name	total_revenue	total_quantity_sold	total_orders
1	The Thai Chicken Pizza	43434.25	2371	2315
2	The Barbecue Chicken Pizza	42768	2432	2372
3	The California Chicken Pizza	41409.5	2370	2302
4	The Classic Deluxe Pizza	38180.5	2453	2416
5	The Spicy Italian Pizza	34831.25	1924	1887

PowerBI Visualization:





6. Bottom 5 Best Sellers by Revenue, Total Quantity, and Total Orders

Create a bar chart showcasing the bottom 5 worst-selling pizzas based on revenue, total quantity, and total orders. This chart will enable us to identify underperforming or less popular pizza options.

Steps:

1. Load the data into Power BI.
2. Create a bar chart.
3. Set the values to "Revenue", "Total Quantity", and "Total Orders".
4. Set the legend to "Pizza Name".
5. Apply a filter to show the bottom 5 items.

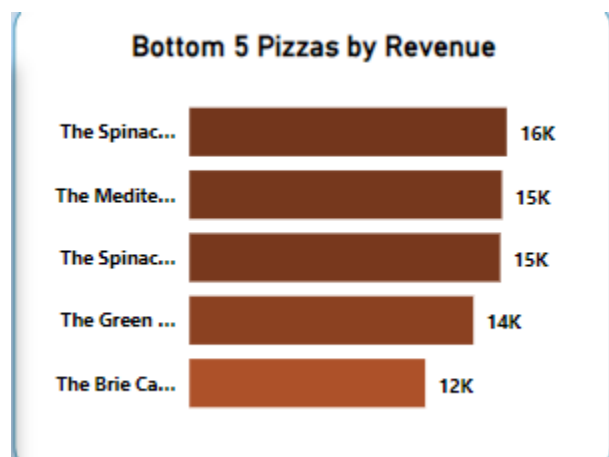
```
--SANYASI NAIDU LALAM--
--Bottom 5 Best Sellers by Revenue,
--Total Quantity, and Total Orders
SELECT TOP 5
    pizza_name,
    SUM(total_price) AS total_revenue,
    SUM(quantity) AS total_quantity_sold,
    COUNT(*) AS total_orders
FROM pizza_sales_portfolio
GROUP BY pizza_name
ORDER BY total_revenue ASC, total_quantity_sold ASC,
total_orders ASC;
```

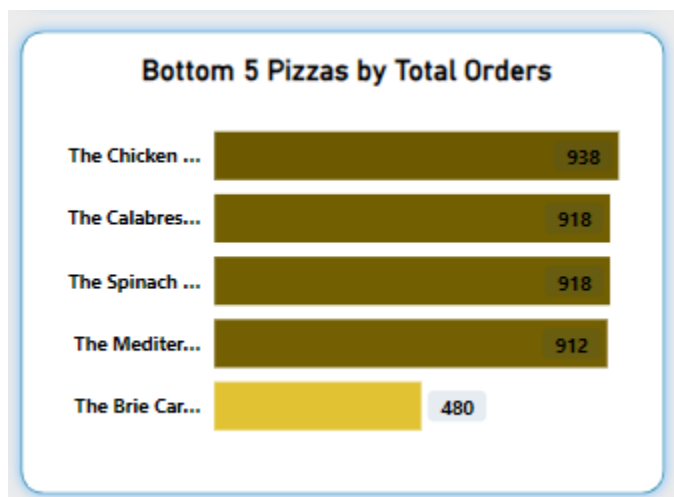
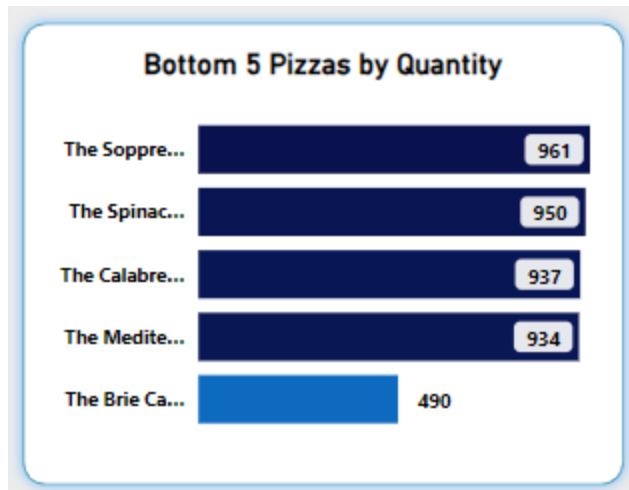
100 %

Results Messages

	pizza_name	total_revenue	total_quantity_sold	total_orders
1	The Brie Carré Pizza	11588.4998130798	490	480
2	The Green Garden Pizza	13955.75	997	987
3	The Spinach Supreme Pizza	15277.75	950	940
4	The Mediterranean Pizza	15360.5	934	923
5	The Spinach Pesto Pizza	15596	970	957

PowerBI Visualization:





5. Analysis and Insights

Based on the detailed analysis of the pizza sales data, I've identified several key patterns and insights. The following sections provide a comprehensive overview of the findings, which will aid in making informed business decisions.

Days

Insight:

- Orders are highest on weekends, specifically on Friday and Saturday evenings.

Analysis:

- **Peak Ordering Times:** This pattern suggests that customers are more likely to order pizzas towards the end of the week, likely due to social gatherings, events, or a general preference for convenience on weekends.

Monthly

Insight:

- **Maximum orders occur in the months of July and January.**

Analysis:

- **Seasonal Trends:** The spike in orders during July and January could be attributed to summer holidays, back-to-school periods, and New Year celebrations. These are times when people are more likely to indulge in ordering food.

Category

Insight:

- **The Classic Category contributes to the maximum sales and total orders.**

Analysis:

- **Popular Choices:** Classic pizzas, with their well-loved toppings and flavors, remain the most popular among customers. This category's strong performance indicates a reliable customer base for traditional pizza options.

Size

Insight:

- **Large size pizzas contribute to the maximum sales.**

Analysis:

- **Size Preference:** Customers prefer larger pizzas, likely for sharing during gatherings or to have leftovers. This preference should guide inventory and promotional strategies.

Revenue

Insight:

- **Thai Chicken Pizza contributes the maximum revenue.**

Analysis:

- **Top Performer:** Despite potentially higher costs, the Thai Chicken Pizza's unique flavor profile and appeal generate significant revenue, making it a valuable item on the menu.

Quantity

Insight:

- **The Classic Deluxe Pizza contributes the maximum total quantity sold.**

Analysis:

- **High Volume Sales:** The Classic Deluxe Pizza is popular in terms of quantity sold, indicating it is a frequent choice among customers. This suggests it meets a broad range of customer tastes and preferences.

Total Orders

Insight:

- **The Classic Deluxe Pizza contributes the maximum total orders.**

Analysis:

- **Customer Favorite:** The high number of orders for the Classic Deluxe Pizza signifies it is a staple choice, reinforcing its importance in the menu lineup.

Revenue (Lowest)

Insight:

- **The Barbecue Pizza contributes the minimum revenue.**

Analysis:

- **Underperformer:** The low revenue from Barbecue Pizza suggests it may not be as appealing or is priced less competitively. This indicates a need for reevaluation of its recipe or marketing strategy.

Quantity (Lowest)

Insight:

- **The Barbecue Pizza contributes the minimum quantity sold.**

Analysis:

- **Low Demand:** The minimal quantity sold points to its lack of popularity, potentially due to flavor preferences or market saturation with similar products.

Total Orders (Lowest)

Insight:

- **The Barbecue Pizza contributes the minimum total orders.**

Analysis:

- **Least Popular:** With the lowest total orders, the Barbecue Pizza is not meeting customer expectations, indicating it may need to be improved or replaced.

Key Findings

1. **High Sales on Weekends:** Orders peak on Friday and Saturday evenings.
2. **Seasonal Peaks:** Maximum orders occur in July and January.
3. **Popular Categories and Sizes:** Classic pizzas and large sizes dominate sales.
4. **Top Revenue Generator:** Thai Chicken Pizza contributes the highest revenue.
5. **Most Sold:** Classic Deluxe Pizza is the highest in total quantity and orders.
6. **Underperforming Item:** Barbecue Pizza generates the lowest revenue, quantity, and orders.

6. Conclusion and Recommendations

Conclusion

The analysis of pizza sales data reveals clear trends in customer preferences and purchasing behavior. By focusing on the high-performing items and addressing the issues with underperforming ones, we can optimize our sales strategy and enhance customer satisfaction.

Recommendations

1. **Promote Weekend Specials:** Develop targeted marketing campaigns for Fridays and Saturdays to leverage peak order times.
2. **Seasonal Promotions:** Create special offers during July and January to capitalize on high demand.
3. **Enhance Classic and Large Pizza Offerings:** Introduce new variations or combos in the Classic category and offer deals on large pizzas to boost sales further.
4. **Leverage Top Performers:** Highlight the Thai Chicken and Classic Deluxe pizzas in marketing materials to attract more customers.
5. **Revamp or Replace Barbecue Pizza:** Consider revising the recipe, adjusting pricing, or promoting the Barbecue Pizza more effectively. If these strategies do not yield results, it may be prudent to replace it with a new flavor.
6. **Customer Feedback:** Implement a feedback system to gather customer opinions on menu items and make data-driven decisions for menu adjustments.