Pizza Sales Analysis

1.Problem Statement

We need to analyze key indicators for our pizza sale data to gain insights into our business performance. We should like to visualize various aspects of our pizza sales data to gain insights and understand key trends

2.Solution

KPI Requirement

- Total Revenue: The sum of total price of all pizza orders
- Average Order Value: The average amount spent per order, calculated by dividing the total revenue y the total number of orders.
- Total Pizza sold: The sum of the quantities of all pizzas sold.
- Total Orders: The total number of orders placed.
- Average Pizzas Per Order: The average number of pizzas sold per order, calculated by dividing the number of pizzas sold by the total number of orders.

Chart Requirement

- Daily Trend For Total Orders: Create a bar chart that displays the daily trend of total orders over a specific time period. This chart will help us identify any pattern or fluctuations in order volumes on a daily basis
- Hourly Trend For Total Orders: Create a line chart that illustrates the hourly trend of total orders throughout the day. This chart will allow us to identify peak hours or periods of high order activity.
- Percentage of Sales By Pizza Category: Generate a pie chart that shows the distribution of sales across different pizza categories. This chart will provide insights into popularity of various pizza categories and their contribution to overall sales.
- Percentage of Sales by Pizza Size: Generate 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.

- Total Pizzas Sold By Pizza Category: Create a funnel chart that presents the total number of pizzas sold for each pizza category. This chart will allow us to compare the sales performance of different pizza categories.
- Top 5 Best Sellers by Total Pizzas Sold: Create a bar chart highlighting the top 5 best-selling pizzas based on the total number of pizzas sold. This chart will help us identify the most popular pizza options.
- Bottom 5 Worst Sellers by Total Pizzas Sold: Create a bar chart showcasing the bottom 5 worst-selling pizzas based on the total number of pizza sold. This chart will enable us to identify underperforming or less popular pizza options.

3.About Dataset

This dataset contains detailed information related to pizza sales transactions. The data captures customer orders, pizza details, pricing, and sales timelines, enabling comprehensive analysis of sales performance and customer ordering behavior.

The dataset is structured in a tabular format and includes key attributes that support analysis across different time periods, pizza categories, and order details.

Key Tables / Data Components

- **Orders**: Contains order-level information such as order ID, order date, and order time.
- **Order Details**: Includes line-item details for each order, such as pizza ID, quantity ordered, and item-level pricing.
- **Pizzas**: Stores information about pizza size and price.
- **Pizza Types**: Contains descriptive details including pizza name, category, and ingredients.

4.Project Objective – Pizza Sales Analysis

- Uncovering sales patterns, trends, and performance indicators from historical pizza sales data.
- Understanding the **“What, When & Why”** behind customer ordering behavior, pizza preferences, and peak sales periods.
- Exploring sales data through **SQL-based aggregations, comparisons, and Excel visualizations** to support data-driven business decisions.

- Building a strong analytical foundation to evaluate product performance, customer demand, and revenue contribution.

5.Tools & Technologies Used

- **MS SQL Server** – Data loading, querying, KPI calculations, and trend analysis
- **Microsoft Excel** – Data cleaning, feature creation, pivot tables, visualizations, and dashboard creation

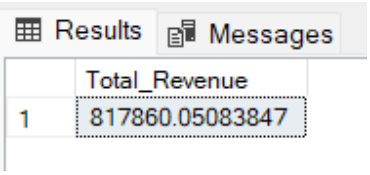
6. Workflow & Methodology

- Data Loading: Loaded the pizza sales dataset into MS SQL Server for structured querying and analysis.
- Initial Exploration: Reviewed table structure and key columns such as order date, order time, pizza category, pizza size, quantity, and total price. Identified key metrics required for business analysis, including revenue, order count, and quantity sold.

7.KPI Analysis Using SQL

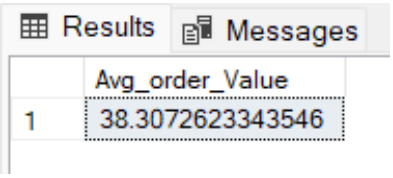
1. Total Revenue:

```
SELECT SUM(total_price) AS Total_Revenue FROM pizza_sales;
```



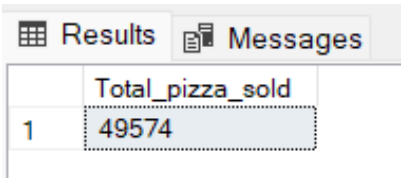
2. Average Order Value

```
SELECT (SUM(total_price) / COUNT(DISTINCT order_id)) AS Avg_order_Value FROM
pizza_sales
```



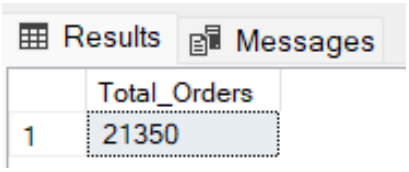
3. Total Pizzas Sold

```
SELECT SUM(quantity) AS Total_pizza_sold FROM pizza_sales
```



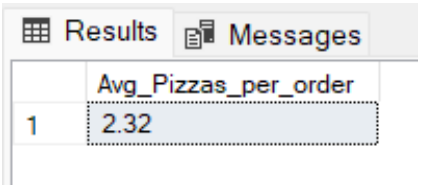
4. Total Orders

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



5. 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
```



8.Trend Analysis Using SQL

1. Hourly Trend for Orders

```
SELECT DATEPART(HOUR, order_time) as order_hours, COUNT(DISTINCT order_id) as
total_orders
from pizza_sales
group by DATEPART(HOUR, order_time)
order by DATEPART(HOUR, order_time)
```

Output

Results Messages

	order_hours	total_orders
1	9	1
2	10	8
3	11	1231
4	12	2520
5	13	2455
6	14	1472
7	15	1468
8	16	1920
9	17	2336
10	18	2399
11	19	2009
12	20	1642
13	21	1198
14	22	663
15	23	28

2. % of Sales by Pizza Category

```
SELECT 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 PCT
FROM pizza_sales
GROUP BY pizza_category
```

Output

Results Messages

	pizza_category	total_revenue	PCT
1	Classic	220053.10	26.91
2	Chicken	195919.50	23.96
3	Veggie	193690.45	23.68
4	Supreme	208197.00	25.46

3. % of Sales by Pizza Size

```
SELECT 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 PCT
FROM pizza_sales
GROUP BY pizza_size
ORDER BY pizza_size
```

Output

Results Messages

	pizza_size	total_revenue	PCT
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

4. Total Pizzas Sold by Pizza Category

```
SELECT 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
```

Output

Results Messages

	pizza_category	Total_Quantity_Sold
1	Classic	14888
2	Supreme	11987
3	Veggie	11649
4	Chicken	11050

5. Top 5 Best Sellers by Total Pizzas Sold

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

Output

	pizza_name	Total_Pizza_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. Bottom 5 Best Sellers by Total Pizzas Sold

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

Output

Results Messages

	pizza_name	Total_Pizza_Sold
1	The Brie Carre Pizza	490
2	The Mediterranean Pizza	934
3	The Calabrese Pizza	937
4	The Spinach Supreme Pizza	950
5	The Soppressata Pizza	961

9.Data Cleaning & Feature Engineering in Excel

After SQL analysis, the dataset was exported to Excel for further preparation and visualization:

- Standardized pizza size values:
  - S → Small
  - L → Large
  - XL → X-Large
- Created a new column **Order Day** using:

- =TEXT([@[order_date]],"dddd")
- Created a calculated field **Total Orders** using:
- =1/COUNTIF(order_id,[@[order_id]])

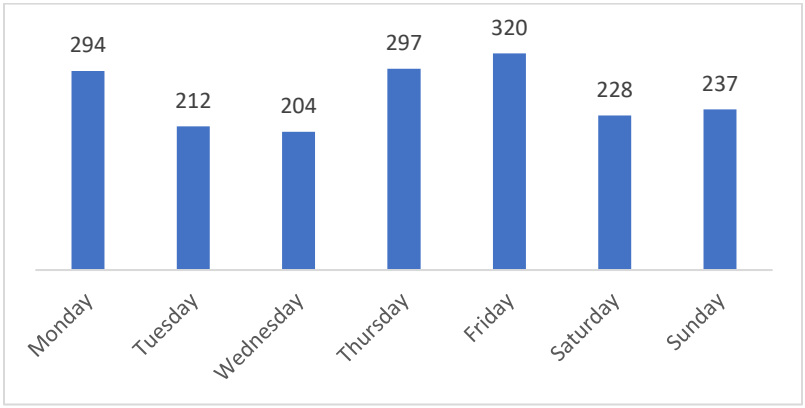
  This ensured accurate order counting within pivot tables.

- Ensured data consistency before visualization.

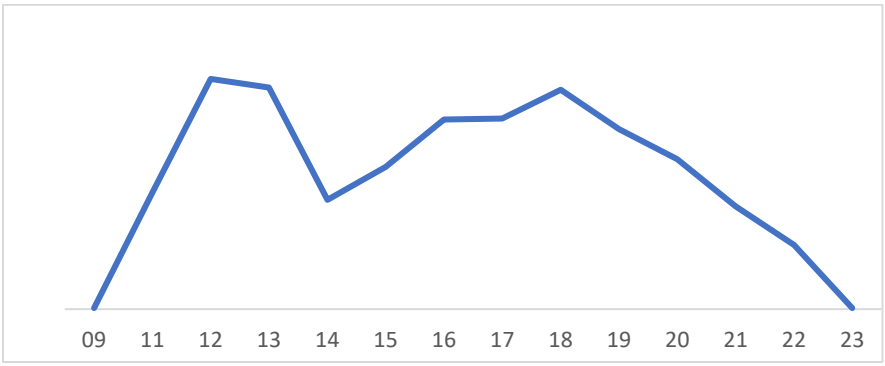
10. Pivot Tables & Visual Analysis

Created pivot tables and charts to analyze key insights:

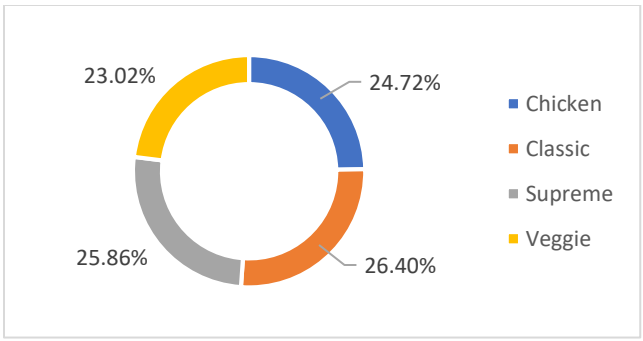
1. **Daily Trend for Total Orders**



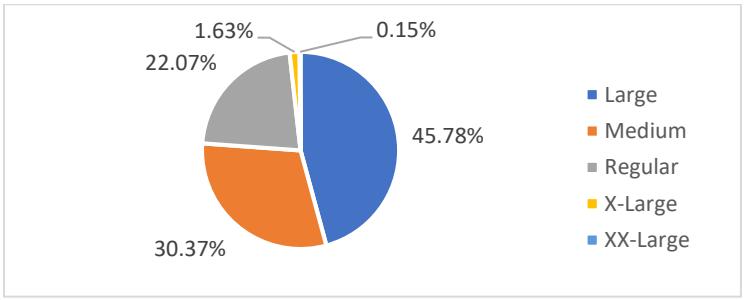
2. **Hourly Trend for Total Orders**



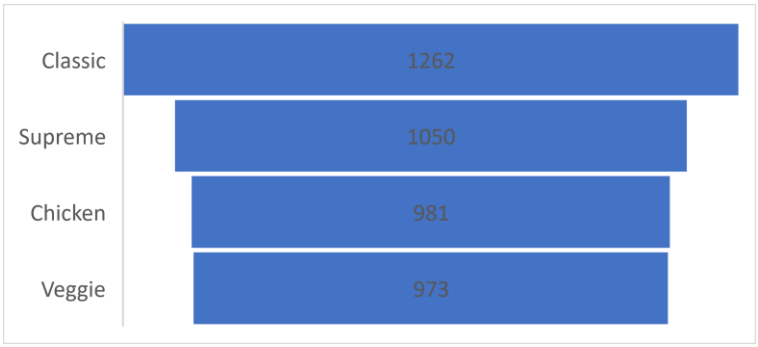
3. **Percentage of Sales by Pizza Category**



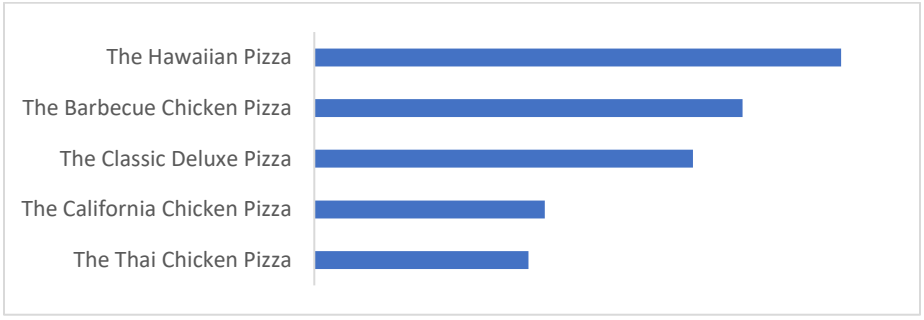
4. **Percentage of Sales by Pizza Size**



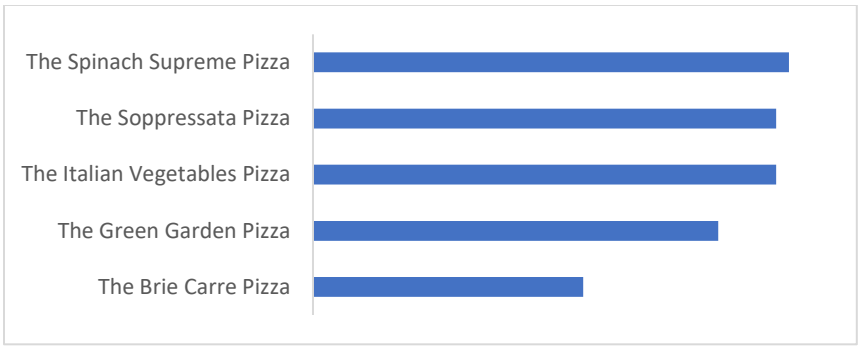
5. **Total Pizzas Sold by Pizza Category**



6. **Top 5 Best Sellers**



7. **Bottom 5 Worst Sellers**



11.Dashboard Creation

- Designed an **interactive Excel dashboard** combining KPIs, charts, and trends.
- Enabled quick insights into:
  - Sales performance
  - Customer ordering behavior
  - Product popularity
  - Time-based demand patterns