Pizza Sales Data Analysis

INTRODUCTION

Here, we have used a dataset for data analysis. This dataset contains detailed information about pizza orders from a specific restaurant or vendor. It captures various aspects of each pizza order, including details about the pizzas, quantities, pricing, order dates, and categorization details.

pizza_id	order_id	pizza_name_id	quantity	order_date	order_time	unit_price	total_price	pizza_size	pizza_category	pizza_ingredients	pizza_name
1	1	hawaiian_m	1	2015-01-01	11:38:36	13.25	13.25	M	Classic	Sliced Ham, Pineapple, Mozzarella Cheese	The Hawaiian Pizza
2	2	classic_dlx_m	1	2015-01-01	11:57:40	16	16	M	Classic	Pepperoni, Mushrooms, Red Onions, Red Peppe...	The Classic Deluxe Pizza
3	2	five_cheese_l	1	2015-01-01	11:57:40	18.5	18.5	L	Veggie	Mozzarella Cheese, Provolone Cheese, Smoked ...	The Five Cheese Pizza
4	2	ital_supr_l	1	2015-01-01	11:57:40	20.75	20.75	L	Supreme	Calabrese Salami, Capocollo, Tomatoes, Red O...	The Italian Supreme Pizza
5	2	mexicana_m	1	2015-01-01	11:57:40	16	16	M	Veggie	Tomatoes, Red Peppers, Jalapeno Peppers, Re...	The Mexicana Pizza
6	2	thai_ckn_l	1	2015-01-01	11:57:40	20.75	20.75	L	Chicken	Chicken, Pineapple, Tomatoes, Red Peppers, T...	The Thai Chicken Pizza
7	3	ital_supr_m	1	2015-01-01	12:12:28	16.5	16.5	M	Supreme	Calabrese Salami, Capocollo, Tomatoes, Red O...	The Italian Supreme Pizza
8	3	prsc_argla_l	1	2015-01-01	12:12:28	20.75	20.75	L	Supreme	Prosciutto di San Daniele, Arugula, Mozzarella C...	The Prosciutto and Arugula Pizza
9	4	ital_supr_m	1	2015-01-01	12:16:31	16.5	16.5	M	Supreme	Calabrese Salami, Capocollo, Tomatoes, Red O...	The Italian Supreme Pizza
10	5	ital_supr_m	1	2015-01-01	12:21:30	16.5	16.5	M	Supreme	Calabrese Salami, Capocollo, Tomatoes, Red O...	The Italian Supreme Pizza
11	6	bbq_ckn_s	1	2015-01-01	12:29:36	12.75	12.75	S	Chicken	Barbecued Chicken, Red Peppers, Green Peppe...	The Barbecue Chicken Pizza
12	6	the_greek_s	1	2015-01-01	12:29:36	12	12	S	Classic	Kalamata Olives, Feta Cheese, Tomatoes, Garli...	The Greek Pizza
13	7	spinach_supr_s	1	2015-01-01	12:50:37	12.5	12.5	S	Supreme	Spinach, Red Onions, Pepperoni, Tomatoes, Art...	The Spinach Supreme Pizza
14	8	spinach_supr_s	1	2015-01-01	12:51:37	12.5	12.5	S	Supreme	Spinach, Red Onions, Pepperoni, Tomatoes, Art...	The Spinach Supreme Pizza
15	9	classic_dlx_s	1	2015-01-01	12:52:01	12	12	S	Classic	Pepperoni, Mushrooms, Red Onions, Red Peppe...	The Classic Deluxe Pizza
16	9	green_garden_s	1	2015-01-01	12:52:01	12	12	S	Veggie	Spinach, Mushrooms, Tomatoes, Green Olives, ...	The Green Garden Pizza
17	9	ital_cpdlo_l	1	2015-01-01	12:52:01	20.5	20.5	L	Classic	Capocollo, Red Peppers, Tomatoes, Goat Chee...	The Italian Capocollo Pizza
18	9	ital_supr_l	1	2015-01-01	12:52:01	20.75	20.75	L	Supreme	Calabrese Salami, Capocollo, Tomatoes, Red O...	The Italian Supreme Pizza
19	9	ital_supr_s	1	2015-01-01	12:52:01	12.5	12.5	S	Supreme	Calabrese Salami, Capocollo, Tomatoes, Red O...	The Italian Supreme Pizza
20	9	mexicana_s	1	2015-01-01	12:52:01	12	12	S	Veggie	Tomatoes, Red Peppers, Jalapeno Peppers, Re...	The Mexicana Pizza
21	9	spicy_ital_l	1	2015-01-01	12:52:01	20.75	20.75	L	Supreme	Capocollo, Tomatoes, Goat Cheese, Artichokes,...	The Spicy Italian Pizza
22	9	spin_pesto_l	1	2015-01-01	12:52:01	20.75	20.75	L	Veggie	Spinach, Artichokes, Tomatoes, Sun-dried Toma...	The Spinach Pesto Pizza

PROBLEM STATEMENT

KPI's Requirement

We need to analyze key indicators for our pizza sales data to gain insights into our business performance. Specifically, we want to calculate the following metrics:

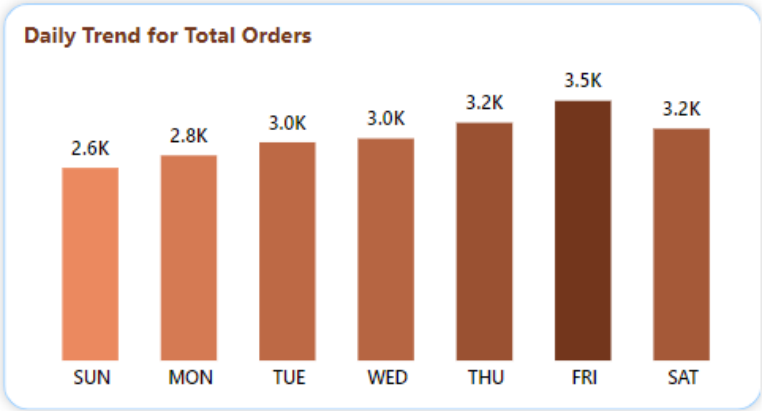
1. **Total Revenue:** The sum of the total price of all pizza orders.
2. **Average Order Value:** The average amount spent per order, calculated by dividing the total revenue by the total number of orders.
3. **Total Pizzas Sold:** The sum of the quantities of all pizzas sold.
4. **Total Orders:** The total number of orders placed.

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.

Charts Requirement

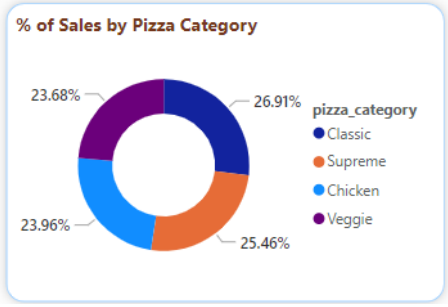
We would like to visualize various aspects of our pizza sales data to gain insights and understand key trends. We have identified the following requirements for creating charts:

1. **Daily Trend for Total Pizzas Sold:** 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.

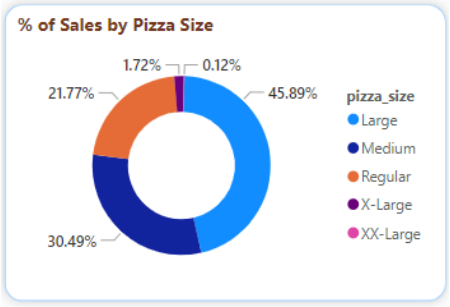


2. **Monthly Trend for Total Orders:** Created a line chart that illustrates the monthly trend of total orders throughout the year. This chart will allow us to identify peak months or periods of high order activity.

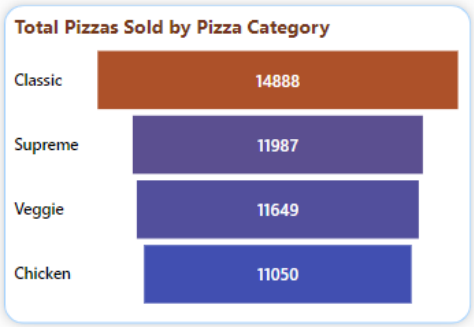
3. **Percentage of Sales by Pizza Category:** Created a pie chart that shows the distribution of sales across different pizza categories. This chart will provide insights into the popularity of various pizza categories and their contribution to overall sales.



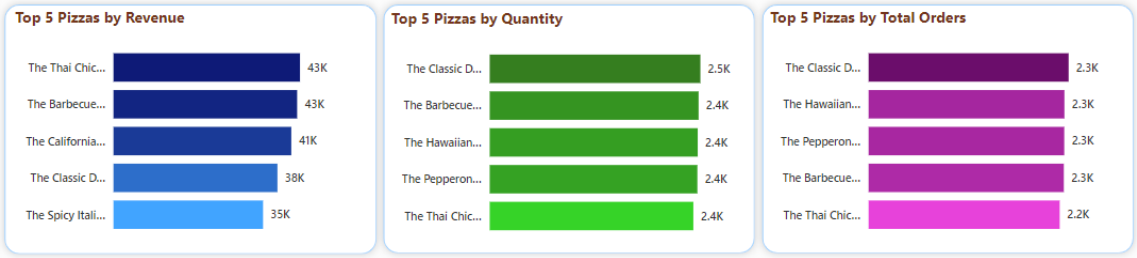
4. **Percentage of Sales by Pizza Size:** Generated a pie chart that represents the percentage of sales attributed to different pizza sizes. This chart will help us understand customer preferences for pizza sizes and their impact on sales.



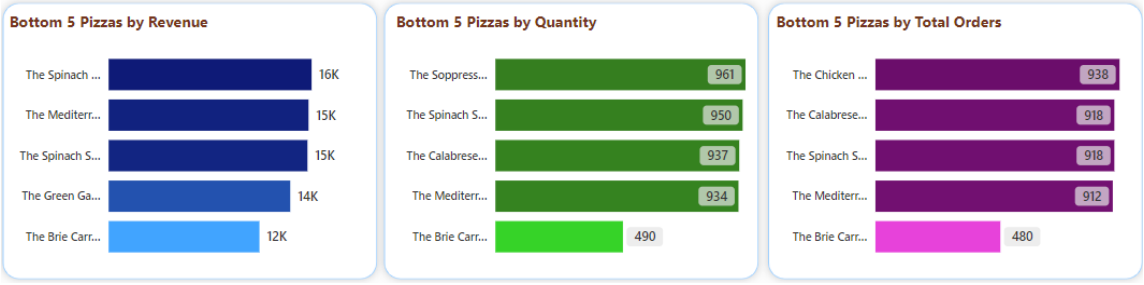
5. **Total Pizzas Sold by Pizza Category:** Created a funnel chart that presents the total number of pizzas sold for each pizza category. This chart will allow us to compare the sales performance of different pizza categories.



6. **Top 5 Best Sellers by Revenue, Total Quantity and Total Orders:** Created a bar chart highlighting the top 5 best-selling pizzas based on the Revenue, Total Quantity, Total Orders. This chart will help us identify the most popular pizza options.



7. **Bottom 5 Best Sellers by Revenue, Total Quantity and Total Orders:** Created a bar chart showcasing the bottom 5 worst-selling pizzas based on the Revenue, Total Quantity, Total Orders. This chart will enable us to identify underperforming or less popular pizza options.

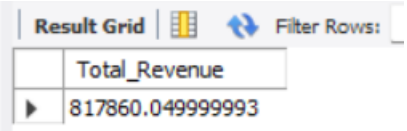


PIZZA SALES SQL QUERIES

A. KPI's

1. Total Revenue:

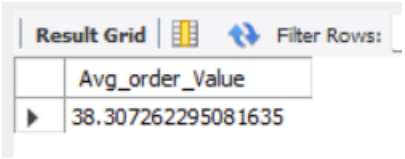
```
SELECT SUM(total_price) AS Total_Revenue FROM pizza_sales;
```



Total_Revenue
817860.049999993

2. Average Order Value

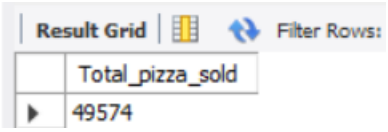
```
SELECT (SUM(total_price) / COUNT(DISTINCT order_id)) AS Avg_order_Value FROM
pizza_sales;
```



Avg_order_Value
38.307262295081635

3. Total Pizzas Sold

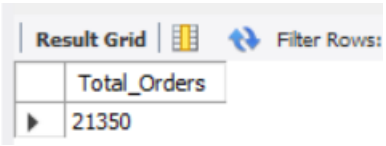
```
SELECT SUM(quantity) AS Total_pizza_sold FROM pizza_sales;
```



Total_pizza_sold
49574

4. Total Orders

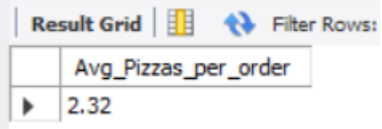
```
SELECT COUNT(DISTINCT order_id) AS Total_Orders FROM pizza_sales;
```



Total_Orders
21350

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;
```

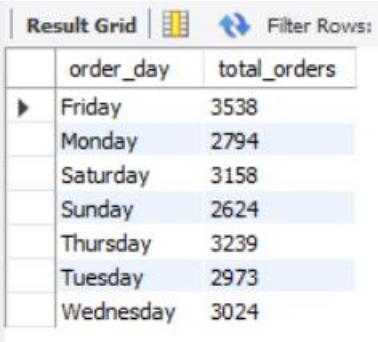


Avg_Pizzas_per_order
2.32

B. Daily Trend for Total Orders

```
SELECT DATE_FORMAT(order_date,'%W') AS order_day, COUNT(DISTINCT order_id) AS
total_orders
FROM pizza_sales
GROUP BY DATE_FORMAT(order_date,'%W');
```

Output:



Result Grid | Filter Rows:

order_day	total_orders
Friday	3538
Monday	2794
Saturday	3158
Sunday	2624
Thursday	3239
Tuesday	2973
Wednesday	3024

C. Monthly Trend for Orders

```
select DATE_FORMAT(order_date,'%M') as Month_Name, COUNT(DISTINCT order_id)
as Total_Orders
from pizza_sales
GROUP BY DATE_FORMAT(order_date,'%M');
```

Output:

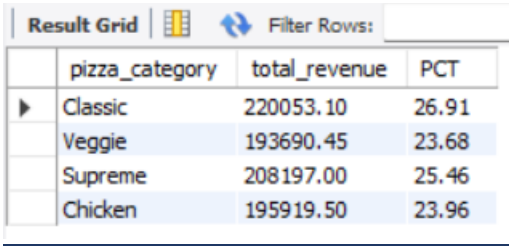
Result Grid | Filter Rows:

Month_Name	Total_Orders
April	1799
August	1841
December	1680
February	1685
January	1845
July	1935
June	1773
March	1840
May	1853
November	1792
October	1646
September	1661

D. % 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:



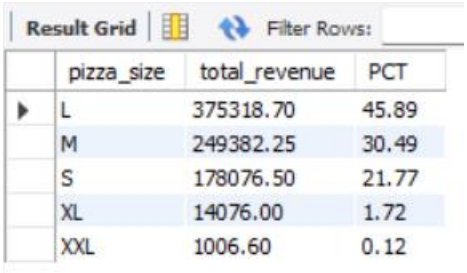
Result Grid | Filter Rows:

pizza_category	total_revenue	PCT
Classic	220053.10	26.91
Veggie	193690.45	23.68
Supreme	208197.00	25.46
Chicken	195919.50	23.96

E. % 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:



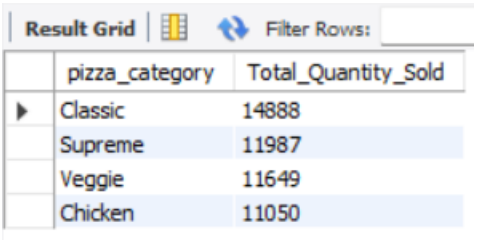
Result Grid | Filter Rows:

pizza_size	total_revenue	PCT
L	375318.70	45.89
M	249382.25	30.49
S	178076.50	21.77
XL	14076.00	1.72
XXL	1006.60	0.12

F. Total Pizzas Sold by Pizza Category

```
SELECT pizza_category, SUM(quantity) as Total_Quantity_Sold
FROM pizza_sales
GROUP BY pizza_category
ORDER BY Total_Quantity_Sold DESC;
```

Output:



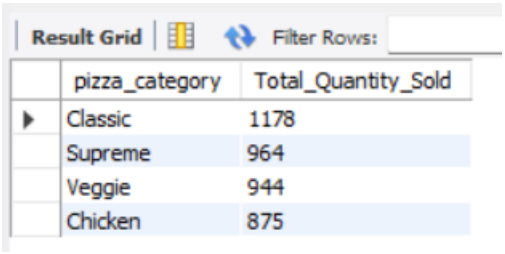
Result Grid | Filter Rows:

pizza_category	Total_Quantity_Sold
Classic	14888
Supreme	11987
Veggie	11649
Chicken	11050

In February,

```
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:



Result Grid | Filter Rows:

pizza_category	Total_Quantity_Sold
Classic	1178
Supreme	964
Veggie	944
Chicken	875

G. Top 5 Pizzas by Revenue

```
SELECT pizza_name, SUM(total_price) AS Total_Revenue
FROM pizza_sales
GROUP BY pizza_name
ORDER BY Total_Revenue DESC
LIMIT 5;
```

Output:

Result Grid | Filter Rows:

pizza_name	Total_Revenue
The Thai Chicken Pizza	43434.25
The Barbecue Chicken Pizza	42768
The California Chicken Pizza	41409.5
The Classic Deluxe Pizza	38180.5
The Spicy Italian Pizza	34831.25

H. Bottom 5 Pizzas by Revenue

```
SELECT pizza_name, SUM(total_price) AS Total_Revenue
FROM pizza_sales
GROUP BY pizza_name
ORDER BY Total_Revenue ASC
LIMIT 5;
```

Output:

Result Grid | Filter Rows:

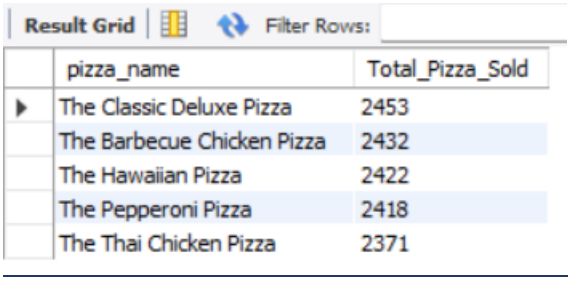
pizza_name	Total_Revenue
The Brie Carre Pizza	11588.4999999999
The Green Garden Pizza	13955.75
The Spinach Supreme Pizza	15277.75
The Mediterranean Pizza	15360.5
The Spinach Pesto Pizza	15596

I. Top 5 Pizzas by Quantity

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

LIMIT 5;
```

Output



Result Grid | Filter Rows:

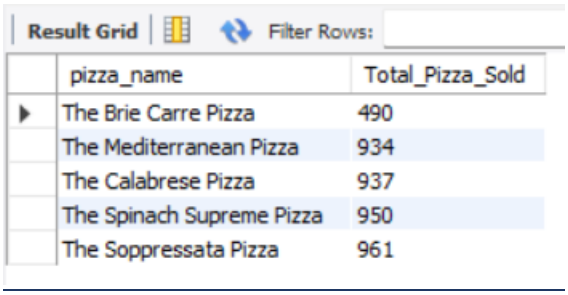
pizza_name	Total_Pizza_Sold
The Classic Deluxe Pizza	2453
The Barbecue Chicken Pizza	2432
The Hawaiian Pizza	2422
The Pepperoni Pizza	2418
The Thai Chicken Pizza	2371

J. Bottom 5 Pizzas by Quantity

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

LIMIT 5;
```

Output



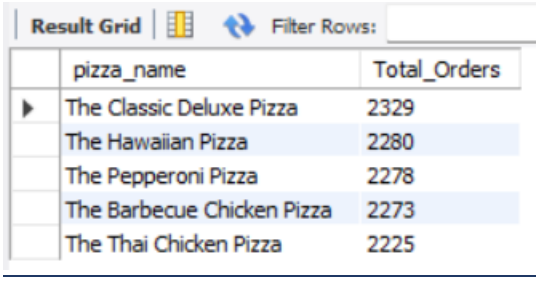
Result Grid | Filter Rows:

pizza_name	Total_Pizza_Sold
The Brie Carre Pizza	490
The Mediterranean Pizza	934
The Calabrese Pizza	937
The Spinach Supreme Pizza	950
The Soppressata Pizza	961

K. Top 5 Pizzas by Total Orders

```
SELECT pizza_name, COUNT(DISTINCT order_id) AS Total_Orders
FROM pizza_sales
GROUP BY pizza_name
ORDER BY Total_Orders DESC
LIMIT 5;
```

Output



Result Grid | Filter Rows:

pizza_name	Total_Orders
The Classic Deluxe Pizza	2329
The Hawaiian Pizza	2280
The Pepperoni Pizza	2278
The Barbecue Chicken Pizza	2273
The Thai Chicken Pizza	2225

L. Bottom 5 Pizzas by Total Orders

```
SELECT pizza_name, COUNT(DISTINCT order_id) AS Total_Orders
FROM pizza_sales
GROUP BY pizza_name
ORDER BY Total_Orders ASC
LIMIT 5;
```

Output

Result Grid | Filter Rows:

pizza_name	Total_Orders
The Brie Carre Pizza	480
The Mediterranean Pizza	912
The Calabrese Pizza	918
The Spinach Supreme Pizza	918
The Chicken Pesto Pizza	938

NOTE

If you want to apply the pizza_category or pizza_size filters to the above queries you can use WHERE clause. Follow some of below examples

```
SELECT pizza_name, COUNT(DISTINCT order_id) AS Total_Orders
FROM pizza_sales
WHERE pizza_category = 'Classic'
GROUP BY pizza_name
ORDER BY Total_Orders ASC
LIMIT 5;
```

SOFTWARE USED

MS OFFICE/ EXCEL: VERSION 2021

MYSQL SERVER: 8.1.0

MYSQL Workbench– 8.0.34

POWER BI: DECEMBER 2023 Version

DATASET

pizza_sales.csv