Sales Analysis Using SQL and Power BI

Presented By Bhaskar Raj

Project Statement

The project aims to understand our pizza sales data to enhance decision-making. We are keen on figuring out crucial details like total revenue, average customer spending, and identifying popular pizza categories. Additionally, we aim to pinpoint areas for improvement, highlighting specific pizza categories or varieties that might need attention. This analysis will guide us in making informed decisions to boost sales and better meet our customer's preferences. To achieve this, we will utilize SQL queries for data analysis and create a Power BI dashboard to present actionable insights.

Pizza Sales SQL Queries

Overview of Pizza Sales Table

```
select * from pizza_sales;
```

The Pizza Sales dataset includes 48,620 rows and 12 columns, offering a detailed perspective on sales dynamics.

A. KPI's

1. Total Revenue:

```
Select sum(total_price) as Total_Revenue from pizza_sales;
```

Results | Messages

	Total_Revenue
1	817860.05083847

2. Average Order Value:

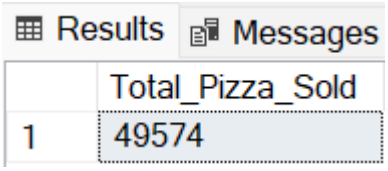
```
Select round(sum(total_price) / count(distinct order_id),2) AS Average_Order_Value
from pizza_sales;
```

Results | Messages

	Average_Order_Value
1	38.31

3. **Total Pizza Sold:**

```
Select sum(quantity) AS Total_Pizza_Sold from pizza_sales;
```

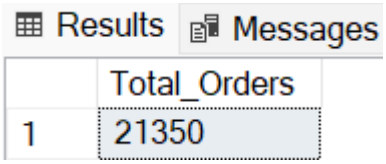


Results | Messages

	Total_Pizza_Sold
1	49574

4. **Total Order:**

```
Select count(Distinct order_id) AS Total_Orders from pizza_sales
```

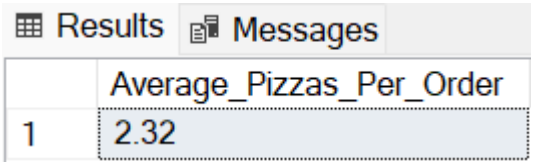


Results | Messages

	Total_Orders
1	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 Average_Pizzas_Per_Order from pizza_sales;
```

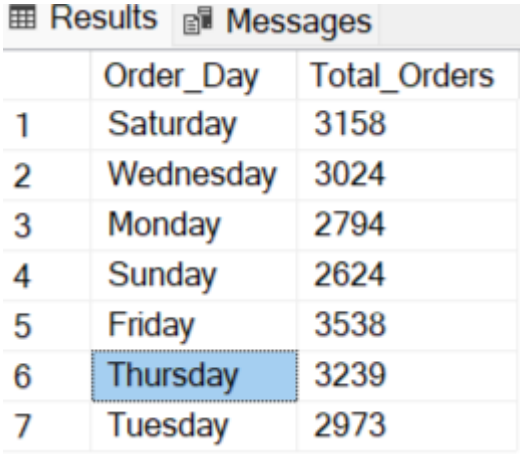


Results | Messages

	Average_Pizzas_Per_Order
1	2.32

B. **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);
```



Results | Messages

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

C. **Monthly Trend for Total Orders:**

```
Select DATENAME(MONTH, order_date) AS Order_Month, count(Distinct order_id) AS
Total_Orders from pizza_sales
Group BY DATENAME(MONTH, order_date)
```

```
Order BY Total_Orders DESC;
```

Results | Messages

	Order_Month	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

D. Percentage Of Sales by Pizza Category:

```
Select pizza_category, round(SUM(total_price),2) AS Total_Sales,
Cast(SUM(total_price) * 100/(Select sum(total_price) from pizza_sales) AS
decimal(10,2)) AS Sales_Percentage
from pizza_sales
Group BY pizza_category
Order BY Sales_Percentage DESC;
```

Results | Messages

	pizza_category	Total_Sales	Sales_Percentage
1	Classic	220053.1	26.91
2	Supreme	208197	25.46
3	Chicken	195919.5	23.96
4	Veggie	193690.45	23.68

E. Percentage of Sales BY Pizza Size:

```
Select pizza_size, ROUND(SUM(total_price),2) AS Total_Sales,
ROUND(SUM(total_price)*100 / (Select SUM(total_price) from pizza_sales), 2) AS
Sales_PCT
from pizza_sales
Group BY pizza_size
Order BY Sales_PCT DESC;
```

Results Messages

	pizza_size	Total_Sales	Sales_PCT
1	L	375318.7	45.89
2	M	249382.25	30.49
3	S	178076.5	21.77
4	XL	14076	1.72
5	XXL	1006.6	0.12

F. Total Pizza Sold by Pizza Category:

```
Select pizza_category, sum(quantity) AS Total_Pizza_Sold
from pizza_sales
Group BY pizza_category;
```

Results Messages

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

G. TOP 5 Best Sellers Pizza by Revenue, Total Quantity, Total Orders:

```
Select top 5 pizza_name, SUM(total_price) AS Total_Revenue
from pizza_sales
Group by pizza_name
Order by Total_Revenue DESC;
```

Results Messages

	pizza_name	Total_Revenue
1	The Thai Chicken Pizza	43434.25
2	The Barbecue Chicken Pizza	42768
3	The California Chicken Pizza	41409.5
4	The Classic Deluxe Pizza	38180.5
5	The Spicy Italian Pizza	34831.25

H. Bottom 5 Pizza by revenue:

```
Select TOP 5 pizza_name, SUM(total_price) AS Total_Revenue
from pizza_sales
Group BY pizza_name
Order BY Total_Revenue ASC;
```

Results | Messages

	pizza_name	Total_Revenue
1	The Brie Carre Pizza	11588.4998130798
2	The Green Garden Pizza	13955.75
3	The Spinach Supreme Pizza	15277.75
4	The Mediterranean Pizza	15360.5
5	The Spinach Pesto Pizza	15596

NOTE

If we want to apply Month, Quarter, Week Filters to the above queries, we can use **WHERE** Clause. Below are Some Examples:

- **Applying Filter Month**

```
Select pizza_category, round(SUM(total_price),2) AS Total_Sales,
Cast(SUM(total_price) * 100/(Select sum(total_price) from pizza_sales Where
MONTH(order_date)=1) AS decimal(10,2))
AS Sales_Percentage
from pizza_sales
Where MONTH(order_date) = 1
Group BY pizza_category
Order BY Sales_Percentage DESC;
```

Here Month(order_date) = 1 indicates that the output is for the Month of January, we can write 1-12 for month January to December.

- **Applying Filter pizza_category**

```
Select datename(DW, order_date) AS Order_Day, count(Distinct order_id) AS
Total_Orders from pizza_sales
Where pizza_category = 'Classic'
group by datename(DW, order_date);
```

Power BI DAX Queries

1. **KPI's Building**
1. **Total Revenue:**

```
Total Revenue = SUM(pizza_sales[total_price])
```

2. **Average Order Value:**

```
Total Orders = DISTINCTCOUNT(pizza_sales[order_id])
Average Order Value = [Total Revenue] / [Total Orders]
                                        Or
Average Order Value = SUM(pizza_sales[total_price]) /
DISTINCTCOUNT(pizza_sales[order_id])
```

3. **Total Pizza Sold:**

```
Total Pizza Sold = SUM(pizza_sales[quantity])
```

4. **Total Orders:**

```
Total Orders = DISTINCTCOUNT(pizza_sales[order_id])
```

5. **Avg. Pizzas Per Order:**

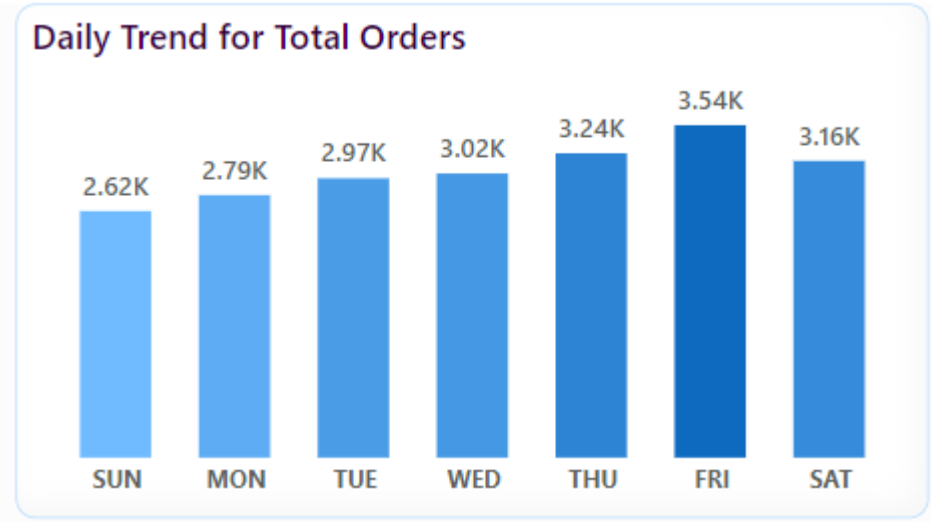
```
Avg Pizzas Per Order = [Total Pizza Sold] / [Total Orders]
```

2. **Daily Trend for Total Orders:**

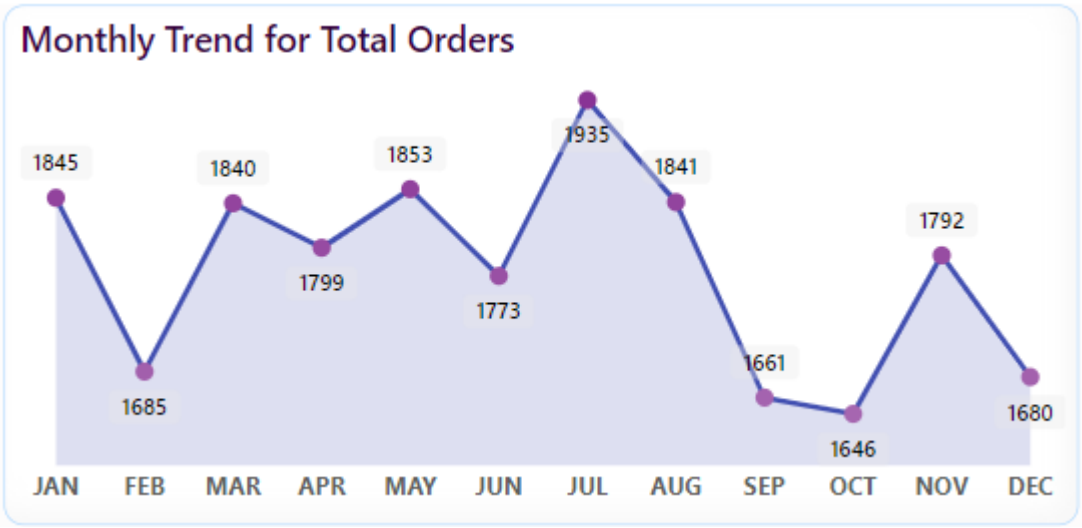
For this I have add a Day Name column from Order Date column.
Transform Data[click on order_date column – add columns tab – Date – Day Name] now Day column is added but we need short day name (FRI instead of Friday) now close and apply.
Add a new column name Order Day and write DAX Query

```
Order Day = UPPER(LEFT(pizza_sales[Day Name], 3)
```

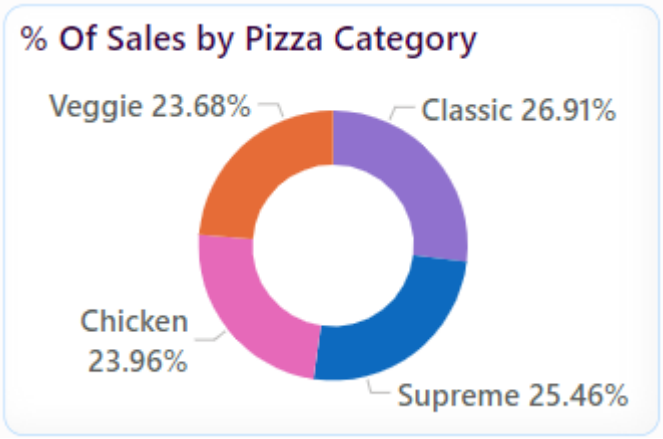
Day Name	Order Day
Friday	FRI
Friday	FRI
Friday	FRI



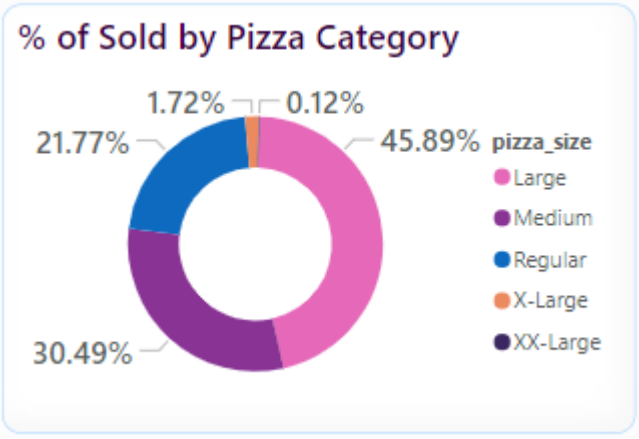
3. **Monthly Trend for Total Orders:**



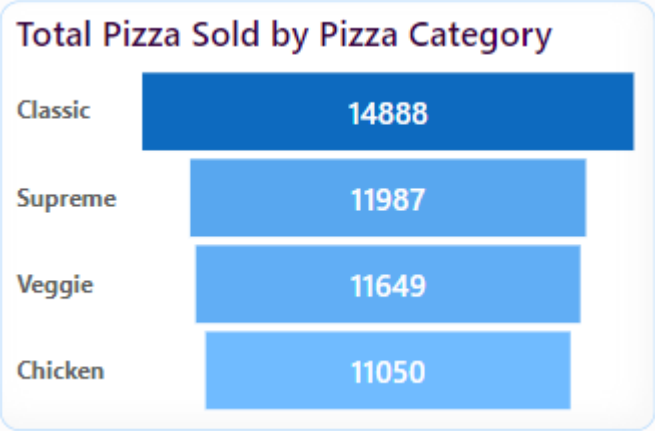
4. **Percentage Of Sales by Pizza Category:**



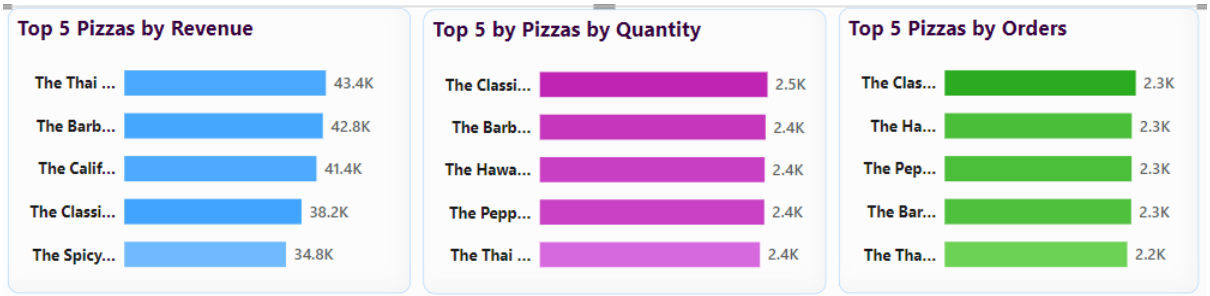
5. **Percentage of Sales BY Pizza Size:**



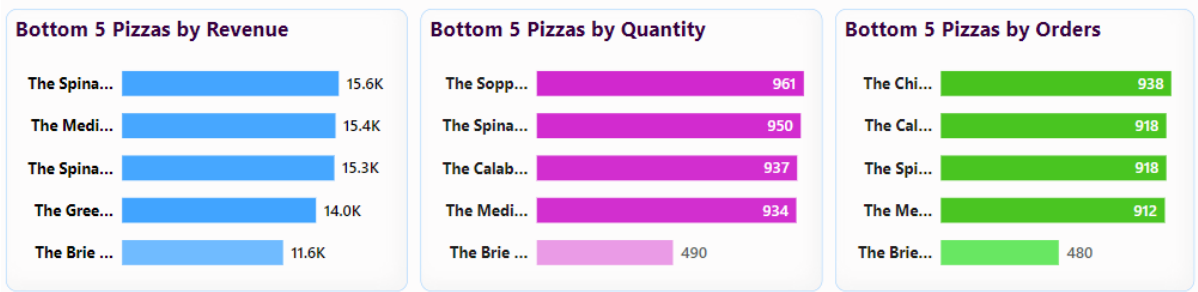
6. **Total Pizza Sold by Pizza Category:**



7. **TOP 5 Best Sellers Pizza by Revenue, Total Quantity, Total Orders:**



8. **Bottom 5 Pizza by revenue, Total Quantity, Total Orders:**



SALES REPORT

Home

Best / Worst Sellers

Insights and Suggestions

- Orders are highest on Fridays and Thursdays, with consistent sales throughout the week. While weekends also perform well, there is potential to boost sales further by implementing targeted offers and promotions.

- July and May exhibit the highest number of orders, showcasing strong performance. Although all months show satisfactory results, October, and September present opportunities for enhancement.

- All pizza categories are performing well in sales.

- Large and Medium pizza sizes have the maximum sales, constituting 76.38% of total sales, while Regular, X-Large, and XX-Large sizes have lower sales and require promotional offers to increase their market share.

- The top pizzas by revenue include Thai Chicken Pizza, Barbecue Chicken Pizza, The California Chicken Pizza, The Classic Deluxe Pizza, and The Spicy Italian Pizza.

- The pizzas with the lowest revenue are Brie Carre Pizza, The Green Garden Pizza, The Spinach Supreme Pizza, and The Mediterranean Pizza. These items may require promotional offers to boost sales or consideration for removal from the menu.

- As overall sales are strong and pizza sales are performing well, maintaining this performance is crucial. To further increase sales, implementing additional offers and promotions is recommended. Following the given suggestions can help sustain and potentially enhance sales growth.