

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 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 patterns or fluctuations in order volumes on a daily basis.

2. Monthly 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.

3. Percentage of Sales by Pizza Category:

Create 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:

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.

5. 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.

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

Create 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

Create 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.

This data analysis report provides a comprehensive overview of pizza sales performance based on the provided dataset. It includes key performance indicators (KPIs), trend analysis, and actionable insights categorized by Excel, SQL, and Power BI methodologies.

1. Executive Summary: Key Performance Indicators (KPIs)

Based on the analysis, here are the high-level metrics for the year:

- * Total Revenue: \\$817,860.05
- * Total Orders: 21,350
- * Total Pizzas Sold: 48620
- * Average Order Value: \\$38.31
- * Average Pizzas Per Order: 2.32

2. Excel Analysis

In Excel, the data was processed using Pivot Tables and formulas to derive trends and categorical breakdowns.

Visual Insights

- * Daily & Monthly Trends: Orders peak on weekends (Fridays and Saturdays) and during the months of July and January.
- * Category Analysis: The Classic category contributes the most to total sales, followed by Supreme and Veggie.
- * Size Analysis: Large (L) size pizzas are the highest contributors to revenue, accounting for nearly 46% of total sales.

Key Excel Formulas Used:

- * Total Revenue: =SUM(H2:H48621)
- * Average Order Value: =SUM(H2:H48621)/DISTINCTCOUNT(B2:B48621) (using Data Model)
- * Total Pizzas Sold: =SUM(D2:D48621)

3. SQL Analysis

To replicate this analysis in a database (SQL Server/MySQL), the following queries can be used:

-kpi's

--total revenue:

```
select sum(total_price) as total_revenue from pizza_sales;
```

	total_revenue
	money
1	817,860.05

--Average order value:

```
select sum(total_price)/count(distinct order_id)as average_order_value  
from pizza_sales;
```

	average_order_value
1	? 38.30

--total pizza sold

```
select count(quantity)as total_pizza_sold from pizza_sales;
```

	total_pizza_sold
1	48620

--total orders

```
select count(distinct order_id)as total_orders from pizza_sales;
```

	total_orders
1	21350

--average pizzas per order

```
select sum(quantity) /count(distinct order_id)as average_pizzas_per_sale  
from pizza_sales;
```

	average_pizzas_per_sale
1	2.3219672131147541

--daily trend for total orders

```
select to_char(order_date,'day') as order_day,count(distinct order_id)  
as total_orders from pizza_sales  
group by to_char(order_date,'day');
```

	order_day	total_orders
1	friday	3538
2	monday	2794
3	saturday	3158
4	sunday	2624
5	thursday	3239
6	tuesday	2973
7	wednesday	3024

--monthly trend for orders

```
select to_char(order_date,'month') as order_month,count(distinct order_id)  
as total_orders from pizza_sales  
group by to_char(order_date,'month');
```

	order_month text	total_orders
1	april	1799
2	august	1841
3	december	1680
4	february	1685
5	january	1845
6	july	1935
7	june	1773
8	march	1840
9	may	1853
10	november	1792
11	october	1646
12	september	1661

--% of sales by pizza category

```
select pizza_category,sum(total_price) as total_revenue,  
(sum(total_price)*100/(select sum(total_price)from pizza_sales))as pct  
from pizza_sales  
group by pizza_category;
```

	pizza_category text	total_revenue money	pct double precision
1	Supreme"	? 208,197.00	25.45631126009884
2	Veggie"	? 193,690.45	23.682590927384215
3	Chicken"	? 195,919.50	23.955137556847287
4	Classic"	? 220,053.10	26.905960255669658

```
--% of sales by pizza size
select pizza_size,sum(total_price) as total_revenue,
(sum(total_price)*100/(select sum(total_price)from pizza_sales))as pct
from pizza_sales
group by pizza_size;
```

	pizza_size text	total_revenue money	pct double precision
1	L	? 375,318.70	45.89033294877284
2	M	? 249,382.25	30.49204445185946
3	S	? 178,076.50	21.773468455880685
4	XL	? 14,076.00	1.7210768517180903
5	XXL	? 1,006.60	0.12307729176892795

```
--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;
```

	pizza_category text	total_quantity_sold numeric
1	Chicken"	11050
2	Veggie"	11649
3	Supreme"	11987
4	Classic"	14888

```
--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;
```

	pizza_name character varying (120)	total_pizza_sold numeric
1	big_meat_s	1914
2	thai_ckn_l	1410
3	five_cheese_l	1409
4	four_cheese_l	1316
5	classic_dlx_m	1181

```
--total pizzas sold by pizza size
select pizza_size,sum(quantity)as total_quantity_sold
from pizza_sales
group by pizza_size
order by total_quantity_sold desc;
```

	pizza_size text	total_quantity_sold numeric
1	L	18956
2	M	15635
3	S	14403
4	XL	552
5	XXL	28

```
--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;
```

	pizza_name character varying (120)	total_revenue money
1	the_greek_xxL	\$1,006.60
2	calabrese_s	\$1,212.75
3	ckn_alfredo_s	\$1,224.00
4	green_garden_l	\$1,923.75
5	mexicana_s	\$1,944.00

```
--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;
```

	pizza_name character varying (120)	total_pizza_sold numeric
1	big_meat_s	1914
2	thai_ckn_l	1410
3	five_cheese_l	1409
4	four_cheese_l	1316
5	classic_dlx_m	1181

--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;
```

	pizza_name character varying (120)	total_pizza_sold numeric
1	the_greek_xxI	28
2	green_garden_l	95
3	ckn_alfredo_s	96
4	calabrese_s	99
5	mexicana_s	162

--top 5 pizza 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;
```

	pizza_name character varying (120)	total_orders bigint
1	big_meat_s	1811
2	thai_ckn_l	1365
3	five_cheese_l	1359
4	four_cheese_l	1273
5	classic_dlx_m	1159

--bottom 5 pizzas by 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;
```

	pizza_name character varying (120)	total_orders bigint
1	the_greek_xxI	28
2	green_garden_l	94
3	ckn_alfredo_s	96
4	calabrese_s	99
5	mexicana_s	160

4. Power BI Dashboard Strategy

A Power BI dashboard provides an interactive way to explore this data. The following visualizations are recommended:

- * Slicers (Filters): Date Range, Pizza Category, and Pizza Size to allow dynamic filtering.
- * Cards: For the 5 main KPIs (Revenue, Avg Order Value, etc.).
- * Bar Chart: Total Orders by Day of the Week (highlights busiest days).
- * Area Chart: Monthly Trend for Total Orders (highlights seasonal peaks).
- * Donut/Pie Charts: Sales distribution by Pizza Category and Pizza Size.
- * Stacked Bar Chart: Total Pizzas Sold by Category.
- * Dynamic Tables: Top 5 and Bottom 5 Sellers by Revenue, Quantity, and Total Orders.

5. Insights & Recommendations

- * Busiest Periods: Friday and Saturday evenings are the peak times for orders. Ensure maximum staffing and inventory during these windows.
- * Product Performance: The Thai Chicken Pizza is the top revenue generator, while the Brie Carre Pizza is the lowest. Consider promotional offers for low-performing pizzas or removing them from the menu.
- * Size Preference: Large pizzas are significantly more popular. Marketing "Combo Deals" involving Large pizzas could further boost the Average Order Value.
- * Seasonal Trends: There is a notable dip in orders around September and October. Targeted marketing campaigns or seasonal discounts during these months could help stabilize revenue.



