



PIZZA SALES PERFORMANCE DASHBOARD

SQL + MICROSOFT POWER BI

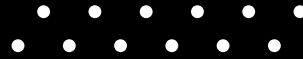
Presented By Ade Ariyo Yudanto



BACKGROUND

Delicious Pizza is a food and beverage company that operates in the fast food industry. As a data-driven company, Delicious Pizza bases every decision on data. Delicious Pizza will reflect on and analyze sales results from the previous year at the start of 2016 to identify the best marketing approach.





PROBLEM STATEMENT



KPI's Requirement

Delicious Pizza needs to analyze key indicators for its pizza sales data to gain insights into business performance



Chart Requirement

Delicious Pizza would like to visualize various aspects of our pizza sales data to gain insights and understand key trends



KPI'S REQUIREMENT

01

TOTAL REVENUE

The sum of the total price of all pizza orders

02

AVERAGE ORDER VALUE

The average amount spent per order, calculated by dividing the total revenue by the total number of orders

03

TOTAL PIZZAS SOLD

The sum of the quantities of all pizzas sold

04

TOTAL ORDERS

The total number of orders placed

05

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

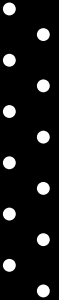


CHART REQUIREMENT

01

DAILY TREND FOR TOTAL ORDERS

Create a Bar Chart that displays the daily trend of total orders over a specific period. The chart will help to identify any patterns or fluctuations in order volumes daily

02

MONTHLY TREND FOR TOTAL ORDERS

Create a Line Chart that illustrates the hourly trend of total orders throughout the day. The chart will help to identify peak hours or periods of high-order activity

03

PERCENTAGE OF SALES BY PIZZA CATEGORY

Create a Pie Chart that shows the distribution of sales across different pizza categories. The chart will provide insights into the popularity of various pizza categories and their contribution to overall sales

04

PERCENTAGE OF SALES BY PIZZA SIZE

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



CHART REQUIREMENT

05

TOP 5 BEST SELLERS

Create a bar chart highlighting the top 5 best-selling pizzas based on the Revenue, Total Quantity, and Total Orders. The chart will help to identify the most popular pizza options

06

BOTTOM 5 WORST SELLERS

Create a bar chart showcasing the bottom 5 worst-selling pizzas based on the Revenue, Total Quantity, and Total Orders. The chart will enable them to identify underperforming or less popular pizza options

07

TOTAL PIZZAS SOLD BY PIZZA CATEGORY

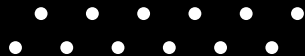
Create a funnel chart that presents the total number of pizzas sold for each pizza category. This chart will allow them to compare the sales performance of different pizza categories



DATASET BRIEF

The dataset is named `pizza_sales` and contains transactions across 2015 with a total of 48.620 raw data which the following columns

COLUMN NAME	DATA TYPE	COLUMN NAME	DATA TYPE
<code>pizza_id</code>	integer	<code>unit_price</code>	float/double
<code>order_id</code>	integer	<code>total_price</code>	float/double
<code>pizza_name_id</code>	varchar(50)	<code>pizza_size</code>	varchar(50)
<code>quantity</code>	tinyint	<code>pizza_category</code>	varchar(50)
<code>order_date</code>	date	<code>pizza_ingerdients</code>	varchar(200)
<code>order_time</code>	time	<code>pizza_name</code>	varchar(50)



DATA UNDERSTANDING

Look at the top 5 data points to gain insight from the dataset

Query

```
SELECT TOP 5 *FROM pizza_sales;
```

Results Messages

	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	1	hawaiian_m	1	2015-01-01	11:38:36.00000000	13,25	13,25	M	Classic	Sliced Ham, Pineapple, Mozzarella Cheese	The Hawaiian Pizza
2	2	2	classic_dlx_m	1	2015-01-01	11:57:40.00000000	16	16	M	Classic	Pepperoni, Mushrooms, Red Onions, Red Peppers, B...	The Classic Deluxe Pizza
3	3	2	five_cheese_l	1	2015-01-01	11:57:40.00000000	18,5	18,5	L	Veggie	Mozzarella Cheese, Provolone Cheese, Smoked Gou...	The Five Cheese Pizza
4	4	2	ital_supr_l	1	2015-01-01	11:57:40.00000000	20,75	20,75	L	Supreme	Calabrese Salami, Capocollo, Tomatoes, Red Onions, ...	The Italian Supreme Pizza
5	5	2	mexicana_m	1	2015-01-01	11:57:40.00000000	16	16	M	Veggie	Tomatoes, Red Peppers, Jalapeno Peppers, Red Oni...	The Mexicana Pizza

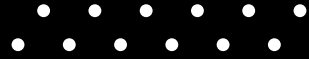




SQL QUERY

KPI'S REQUIREMENT





OBJECTIVE

Documenting SQL queries and results of KPI's Requirement is emphasized for comparison with Power BI outcomes, ensuring accuracy and validation.



1



Total Revenue

Query

```
SELECT ROUND(SUM(total_price),2) AS Total_Revenue  
FROM  
pizza_sales;
```

Result

Results		Messages	
	Total_Revenue		
1	817860,05		

The total revenue is calculated by summing up the "total price" column, resulting in a total sales revenue of \$81,786

2



Average Order Value

Query

```
SELECT ROUND(SUM(total_price)/COUNT(DISTINCT order_id),2) AS Avg_order_Value  
FROM  
pizza_sales;
```

Result

Results		Messages	
	Avg_order_Value		
1	38,31		

The average order value is determined by dividing the total revenue by the distinct count of order IDs, resulting in an average order value of \$38.30.

3



Total Pizzas Sold

Query

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

Result

Results		Messages	
	Total_pizza_sold		
1	49574		

The total number of pizzas sold is obtained by summing up the "quantity" column, reaching a total of 49,574 pizzas sold.

4



Total Orders

Query

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

Result

Results		Messages	
	Total_Orders		
1	21350		

The total number of orders is determined by counting the distinct order IDs, resulting in a total of 21,350 orders.

5



Average Pizzas Per Order

Query

```
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
```

Result

Results Messages	
Avg_Pizzas_per_order	
1	2.32

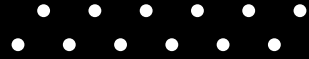
The average pizzas per order is calculated by dividing the total number of pizzas sold by the distinct count of order IDs, yielding an average of 2.32 pizzas per order.



SQL QUERY

CHART'S REQUIREMENT





OBJECTIVE

Documenting SQL queries and results of Chart Requirement is emphasized for comparison with Power BI outcomes, ensuring accuracy and validation.



1. Daily Trend for Total Orders

Query

```
SELECT DATENAME(DW, order_date) AS order_day, COUNT(DISTINCT order_id)
AS total_orders
FROM pizza_sales
GROUP BY DATENAME(DW, order_date)
```

Result

	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

The query demonstrates how to create a daily trend chart for total orders using SQL's date functions and aggregation



2. Monthly Trend for Total Orders

Query

```
SELECT DATENAME(MONTH, order_date) AS Month_Name, COUNT(DISTINCT order_id) AS  
Total_Orders  
FROM pizza_sales  
GROUP BY DATENAME(MONTH, order_date)
```

Result

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

To find the monthly trend of orders, a query is written using the date name function, grouping by months, and ordering the results.



3. Percentage of Sales By Pizza Category

Query

```
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
```

Result

	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

Determine the percentage of sales by Pizza category, calculating the ratio of category sales to total sales and expressing it as a percentage.



4. Percentage of Sales By Pizza Size

Query

```
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
```

Result

	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

A similar approach is used to find the percentage of sales by Pizza size, demonstrating how to adapt the query for different dimensions.



5. Total Pizzas Sold By Pizza Category

Query

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

Result

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

Determine the total number of pizzas sold for each pizza category. It will allow them to compare the sales performance of different pizza categories.



6. Top 5 Pizzas By Revenue

Query

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

Result

	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

To find the top 5 best-selling pizzas by revenue using SQL, including the sum and order by functions, and limit the results to the top five.



7. Bottom 5 Pizzas By Revenue

Query

```
SELECT TOP 5 pizza_name, ROUND(SUM(total_price),2) AS Total_Revenue
FROM pizza_sales
GROUP BY pizza_name
ORDER BY Total_Revenue ASC
```

Result

	pizza_name	Total_Revenue
1	The Brie Carre Pizza	11588,5
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

To find the bottom 5 worst-selling pizzas by revenue using SQL, including the sum and order by functions, and limit the results to the bottom five.



8. Top 5 Pizzas By Quantity

Query

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

Result

Results		Messages
	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

To find the top 5 best-selling pizzas by quantity using SQL, including the sum and order by functions, and limit the results to the top five.



9. Bottom 5 Pizzas By Quantity

Query

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

Result

	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

To find the bottom 5 worst-selling pizzas by quantity using SQL, including the sum and order by functions, and limit the results to the bottom five.



10. Top 5 Pizzas By Total Orders

Query

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

Result

	pizza_name	Total_Orders
1	The Classic Deluxe Pizza	2329
2	The Hawaiian Pizza	2280
3	The Pepperoni Pizza	2278
4	The Barbecue Chicken Pizza	2273
5	The Thai Chicken Pizza	2225

To find the top 5 best-selling pizzas by total orders using SQL, including the sum and order by functions, and limit the results to the top five.



11. Bottom 5 Pizzas By Total Orders

Query

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

Result

	pizza_name	Total_Orders
1	The Brie Carre Pizza	480
2	The Mediterranean Pizza	912
3	The Spinach Supreme Pizza	918
4	The Calabrese Pizza	918
5	The Chicken Pesto Pizza	938

To find the bottom 5 worst-selling pizzas by total orders using SQL, including the sum and order by functions, and limit the results to the bottom five.

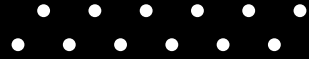




CREATE DASHBOARD

MICROSOFT POWER BI

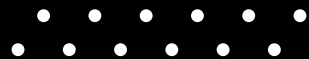




OBJECTIVE

Following the creation of a query for the determined problem statement, the following step is to visualize the solution to the problem statement based on the query.





DATA CLEANING

pizza_size ▾	pizza_category ▾
L	Chicken
L	Chicken
L	Chicken
L	Chicken
L	Chicken
L	Chicken
L	Chicken
L	Chicken
L	Chicken
L	Chicken



pizza_size ▾	pizza_category ▾
Large	Chicken
Large	Chicken
Large	Chicken
Large	Chicken
Large	Chicken
Large	Chicken
Large	Chicken
Large	Chicken
Large	Chicken
Large	Chicken

Utilized Power Query in Power BI for data cleaning, replacing values to standardize pizza sizes. In this case, replace abbreviations with full names for pizza sizes.



KPI BUILDING



Create key performance indicators (KPIs) in Power BI using DAX measures:
Total Revenue, Total Orders, Average Order Value, Total Pizzas Sold, Average Pizzas per Order

Build KPI cards in Power BI by adding DAX measures to the new card visual, simplifying the display of essential metrics.

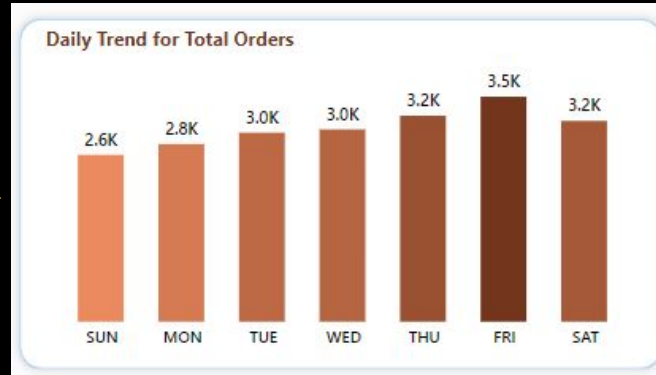
COMPARING RESULT



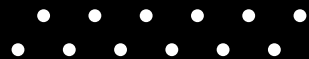
Verifying Power BI results by comparing them with SQL queries to ensure accuracy and identify any discrepancies.

DAILY TREND FOR TOTAL ORDERS

Day Name ▾	Order Day ▾	Day Number ▾
Friday	FRI	6
Friday	FRI	6
Friday	FRI	6
Friday	FRI	6
Friday	FRI	6
Friday	FRI	6
Friday	FRI	6
Friday	FRI	6
Friday	FRI	6
Friday	FRI	6



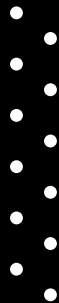
Using Power Query to extract and manipulate date-related information, in this case, obtaining the day name from the order date. Creating a column chart to visualize the daily trend of total orders by utilizing the day name information extracted earlier. Adjusting visual settings and creating a measure in Power Query Editor to add day numbers, enabling proper sorting of the chart by the days of the week.



INSIGHT



It can be concluded that orders are highest on weekends, especially on Friday and Saturday. This makes sense because people may love pizza to unwind after a long weekend.



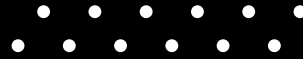
MONTHLY TREND FOR TOTAL ORDERS

Month Number	Order Month
1	JAN
1	JAN
1	JAN
1	JAN
1	JAN
1	JAN
1	JAN
1	JAN
1	JAN
1	JAN
1	JAN



Creating Month Columns: Generate month and month number columns in Power Query Editor for effective sorting and visualization by month.

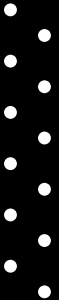
Monthly Trend Visualization: Utilize an area chart to showcase monthly orders over the year, ensuring proper formatting and aesthetics.



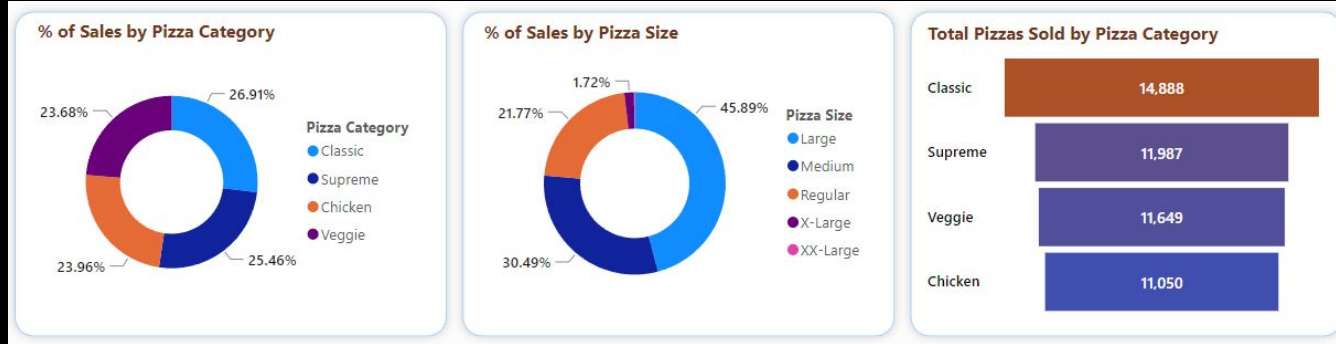
INSIGHT



The months of July and May have the biggest number of orders. According to the trend, consumers order a lot of pizza throughout the spring (March-May) and summer (June - August). Meanwhile, there is a notable drop in winter, especially in January, maybe due to New Year's celebrations.



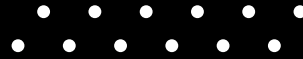
PERCENTAGE OF SALES & TOTAL ORDERS



Percentage of Sales by Pizza Category: Represent sales distribution using a donut chart, showcasing percentages of total revenue by pizza category.

Percentage of Sales by Pizza Size: Replicate the previous donut chart, this time displaying percentages of total revenue by pizza size.

Total Pizza Sold by Pizza Category: Employ a funnel chart to visualize the total pizza units sold by pizza category, ensuring proper formatting and clarity.



INSIGHT

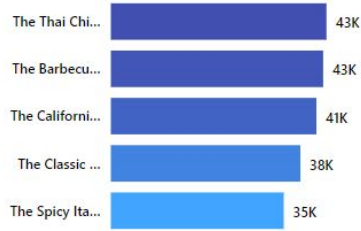


It turns out that the classic category and the large size are the most popular choices. It is proven that the classic category contributed the most sales and total orders, and the large size contributed the most sales by size. On the other hand, the veggie category and the xx-large size contributed to the lowest sales, while the chicken category was the least requested.

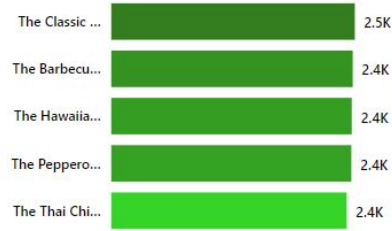


BEST SELLERS PIZZA

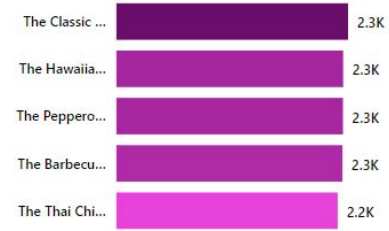
Top 5 Pizzas by Revenue



Top 5 Pizzas by Quantity



Top 5 Pizzas by Total Orders

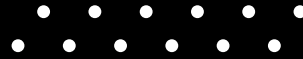


Created a bar chart displaying the top 5 pizza categories based on total revenue, quantity, and total orders then applied a gradient color scheme to visualize revenue differences as well as formatted labels and axes for a cleaner presentation.

WORST SELLERS PIZZA



Created a bar chart displaying the bottom 5 pizza categories based on total revenue, quantity, and total orders then applied a gradient color scheme to visualize revenue differences as well as formatted labels and axes for a cleaner presentation.



INSIGHT



It seems that Thai Chicken Pizza tops revenue, Classic Deluxe leads in quantity, but Thai Chicken Pizza has higher revenue despite lower quantity and total orders. Meanwhile, The Brie Carre Pizza is the worst in terms of sales, quantity, and total orders. If look at the ingredients, The Brie Carre Pizza consists of Brie Carre Cheese, Prosciutto, Caramelized Onions, Pears, Thyme, and Garlic. Maybe there is something wrong with the combination of ingredients. As a suggestion, they could improve the ingredients or they should remove Brie Carre Pizza from the menu because it is the least popular pizzas.





FULL DASHBOARD





PIZZA SALES REPORT

Jan 15 - Dec 15

Pizza Category

All

1/1/2015

12/31/2015



Home

Best/Worst Sellers

BUSIEST DAYS AND TIMES

DAYS

Orders are **highest** on **Friday**

MONTHLY

There is a **high** number of orders in the months of **July** and **May**

SALES PERFORMANCE

CATEGORY

Classic Category Pizza contributed to **maximum** sales and total orders

MONTHLY

Large Size Pizza contributed to **maximum** sales



817.86K

Total Revenue



38.31

Avg Order Value



49,574

Total Pizzas Sold



21,350

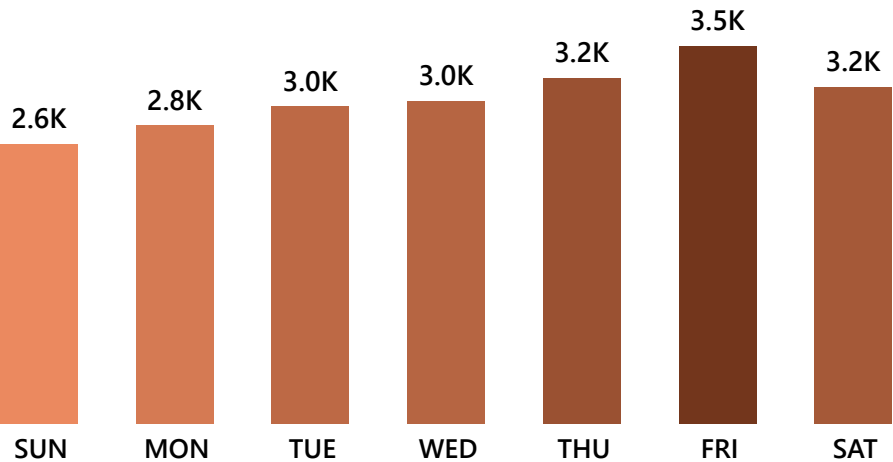
Total Orders



2.32

Avg Pizzas Per Order

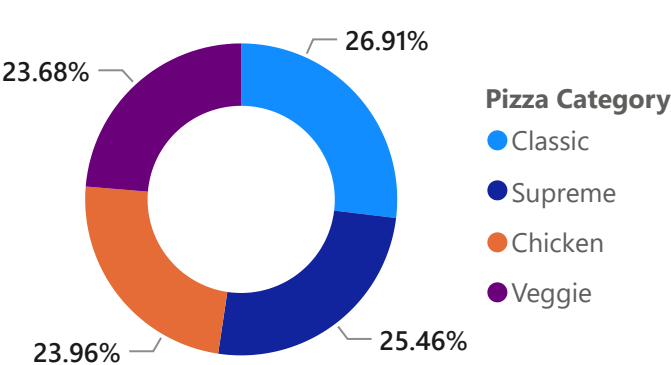
Daily Trend for Total Orders



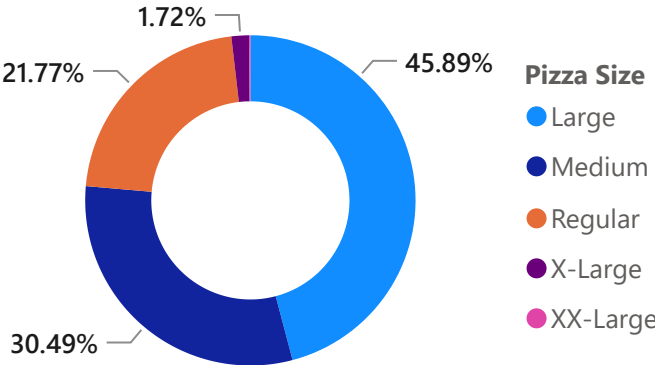
Monthly Trend of Total Orders



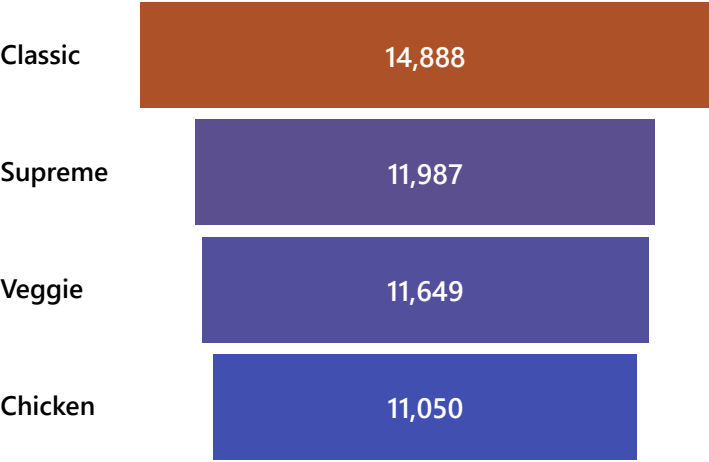
% of Sales by Pizza Category



% of Sales by Pizza Size



Total Pizzas Sold by Pizza Category





PIZZA SALES REPORT

Jan 15 - Dec 15

Pizza Category

All

1/1/2015

12/31/2015



Home



Best/Worst Sellers

BEST SELLERS

REVENUE

The Thai Chicken Pizza contributes to **maximum** revenue

QUANTITY

The Classic Deluxe Pizza contributes to **maximum** total quantities

TOTAL ORDERS

The Classic Deluxe Pizza contributes to **maximum** total orders

WORST SELLERS

REVENUE

The Brie Carre Pizza contributed to **minimum** revenue

QUANTITY

The Brie Carre Pizza contributed to **minimum** total quantities

TOTAL ORDERS

The Brie Carre Pizza contributed to **minimum** total orders



817.86K

Total Revenue



38.31

Avg Order Value



49,574

Total Pizzas Sold



21,350

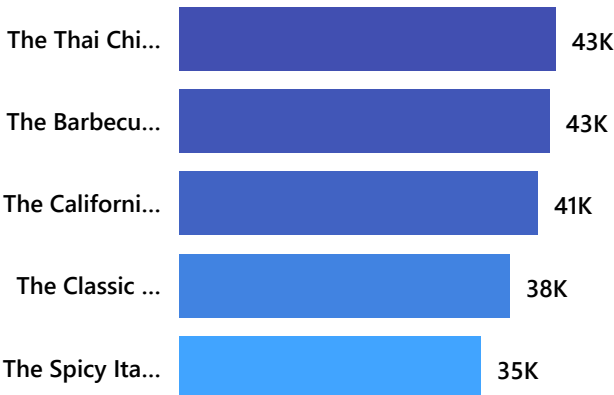
Total Orders



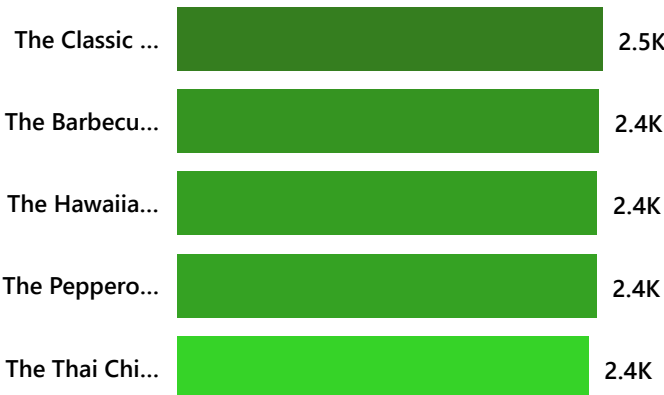
2.32

Avg Pizzas Per Order

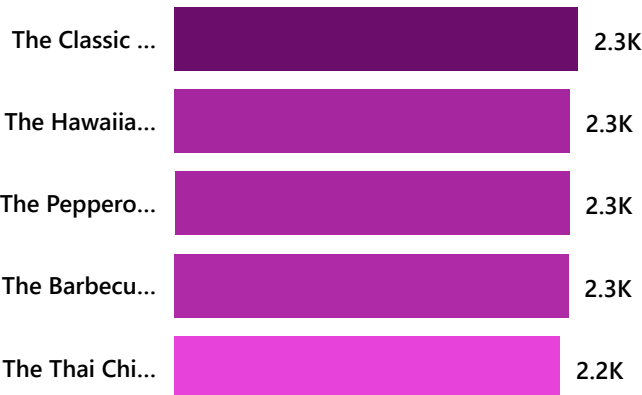
Top 5 Pizzas by Revenue



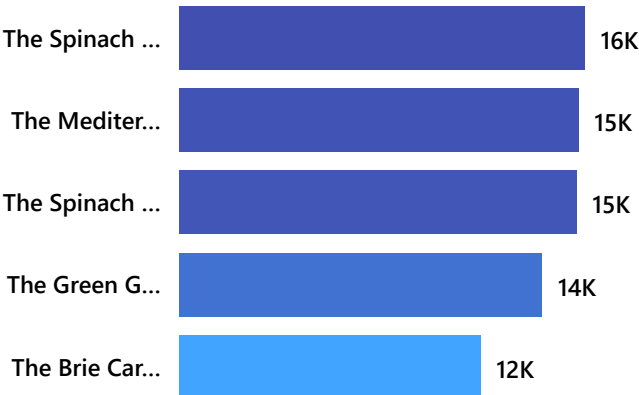
Top 5 Pizzas by Quantity



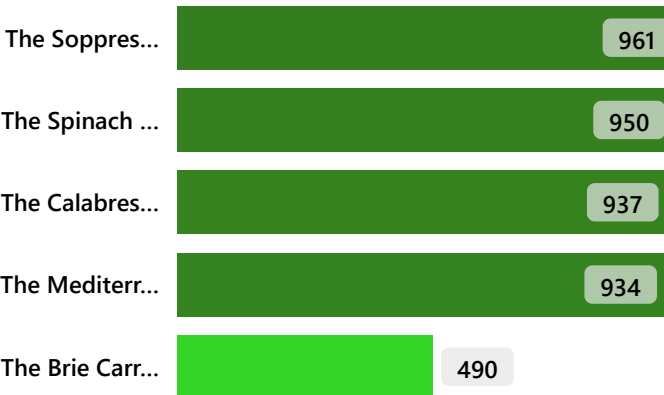
Top 5 Pizzas by Total Orders



Bottom 5 Pizzas by Revenue



Bottom 5 Pizzas by Quantity



Bottom 5 Pizzas by Total Orders

