Pizza Sales Analysis

SQL & PowerBI Project

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This presentation provides a comprehensive analysis of the the data from the Pizza Ordering System which has been extracted, manipulated and analyzed using MySQL and PowerBI. Our database “**pizzahut**” consists of four interconnected tables: pizzas, pizza_types, orders and order_details.

Queries had been designed and executed to :

- Aggregate data for meaningful insights
- Calculate key metrics such as revenue and order quantities
- Identify trends and patterns in pizza orders

Table Relationships

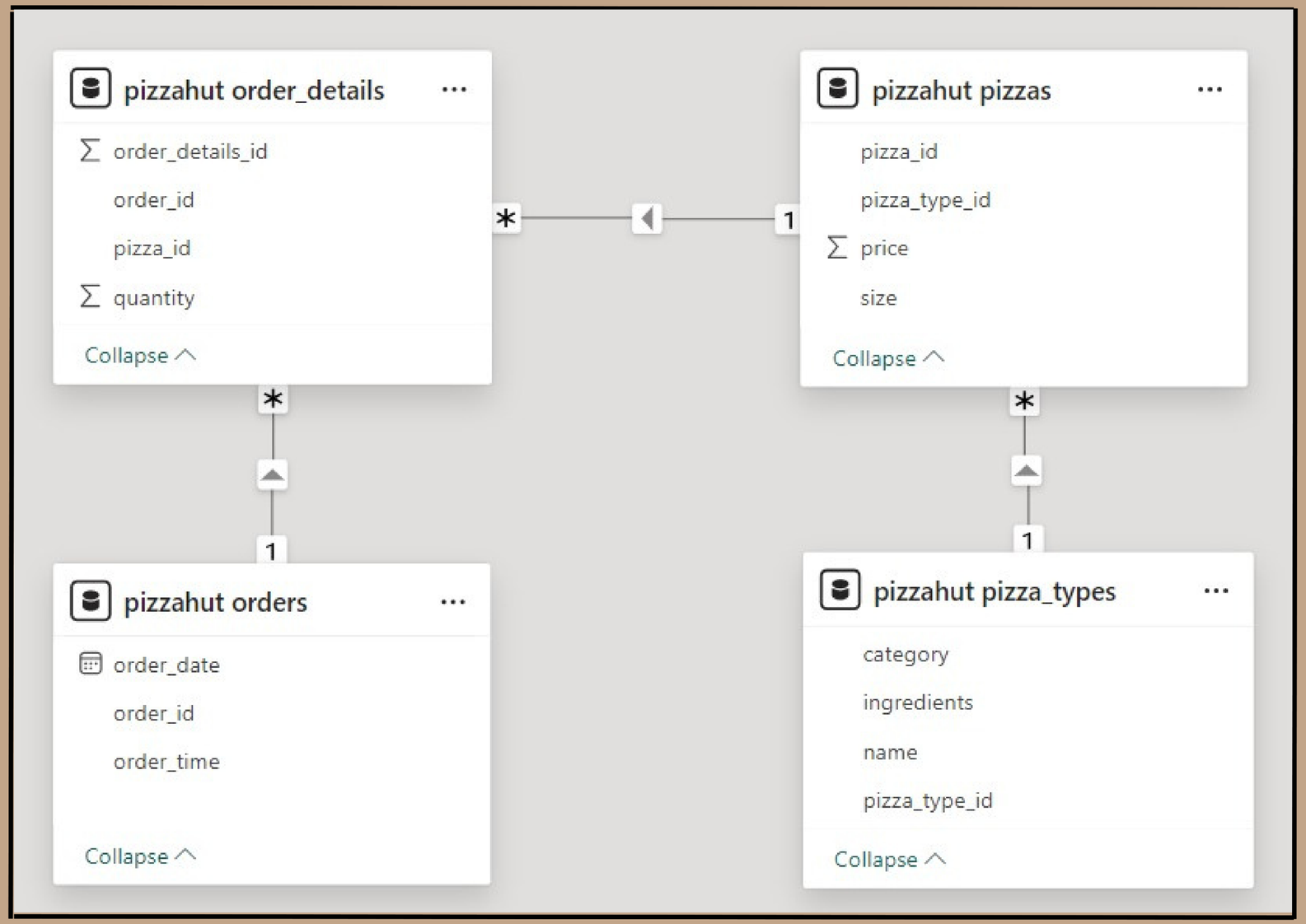


Table Details & Relationship

order_details_id	order_id	pizza_id	quantity
1	1	hawaiian_m	1
2	2	classic_dlx_m	1
3	2	five_cheese_l	1
4	2	ital_supr_l	1
5	2	mexicana_m	1
6	2	thai_ckn_l	1

Orders_details

pizza_id	pizza_type_id	size	price
bbq_ckn_s	bbq_ckn	S	12.75
bbq_ckn_m	bbq_ckn	M	16.75
bbq_ckn_l	bbq_ckn	L	20.75
cali_ckn_s	cali_ckn	S	12.75
cali_ckn_m	cali_ckn	M	16.75
cali_ckn_l	cali_ckn	L	20.75

Pizzas

Order

order_id	order_date	order_time
1	2015-01-01	11:38:36
2	2015-01-01	11:57:40
3	2015-01-01	12:12:28
4	2015-01-01	12:16:31
5	2015-01-01	12:21:30
6	2015-01-01	12:29:36

Pizza_types

pizza_type_id	name	category	ingredients
bbq_ckn	The Barbecue Chicken Pizza	Chicken	Barbecued Chicken, Red Peppers, Green Peppe.
cali_ckn	The California Chicken Pizza	Chicken	Chicken, Artichoke, Spinach, Garlic, Jalapeno P..
ckn_alfredo	The Chicken Alfredo Pizza	Chicken	Chicken, Red Onions, Red Peppers, Mushrooms.
ckn_pesto	The Chicken Pesto Pizza	Chicken	Chicken, Tomatoes, Red Peppers, Spinach, Garl.
southw_ckn	The Southwest Chicken Pizza	Chicken	Chicken, Tomatoes, Red Peppers, Red Onions, .
thai_ckn	The Thai Chicken Pizza	Chicken	Chicken, Pineapple, Tomatoes, Red Peppers, T..

Queries

- RETRIEVE THE TOTAL NUMBER OF ORDERS PLACED.
- CALCULATE THE TOTAL REVENUE GENERATED FROM PIZZA SALES.
- IDENTIFY THE HIGHEST-PRICED PIZZA.
- IDENTIFY THE MOST COMMON PIZZA SIZE ORDERED.
- LIST THE TOP 5 MOST ORDERED PIZZA TYPES ALONG WITH THEIR QUANTITIES.

- JOIN THE NECESSARY TABLES TO FIND THE TOTAL QUANTITY OF EACH PIZZA CATEGORY ORDERED.
- DETERMINE THE DISTRIBUTION OF ORDERS BY HOUR OF THE DAY.
- JOIN RELEVANT TABLES TO FIND THE CATEGORY-WISE DISTRIBUTION OF PIZZAS.
- GROUP THE ORDERS BY DATE AND CALCULATE THE AVERAGE NUMBER OF PIZZAS ORDERED PER DAY.
- DETERMINE THE TOP 3 MOST ORDERED PIZZA TYPES BASED ON REVENUE.

- CALCULATE THE PERCENTAGE CONTRIBUTION OF EACH PIZZA TYPE TO TOTAL REVENUE.
- ANALYZE THE CUMULATIVE REVENUE GENERATED OVER TIME.
- DETERMINE THE TOP 3 MOST ORDERED PIZZA TYPES BASED ON REVENUE FOR EACH PIZZA CATEGORY.

Retrieve total numbers of orders placed

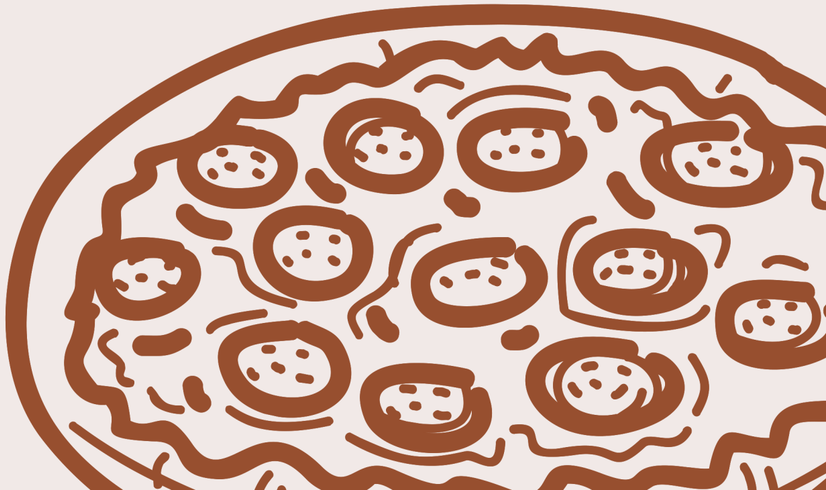
```sql
SELECT
    COUNT(order_id) AS total_orders
FROM
    orders;
```

total_orders
21350

Calculate total revenue generated from pizza sales.

```sql
SELECT
    ROUND(SUM(ord.quantity * p.price), 2) AS total_revenue
FROM
    order_details ord
        JOIN
    pizzas p ON ord.pizza_id = p.pizza_id;
```

total_revenue
817860.05



Identify the highest priced pizza

```sql
SELECT
    pt.name as Pizza_Name, p.price as Pizza_Price
FROM
    pizza_types pt
        JOIN
    pizzas p ON pt.pizza_type_id = p.pizza_type_id
ORDER BY p.price DESC
LIMIT 1;
```

Pizza_Name	Pizza_Price
The Greek Pizza	35.95

Identify the most common pizza size ordered.

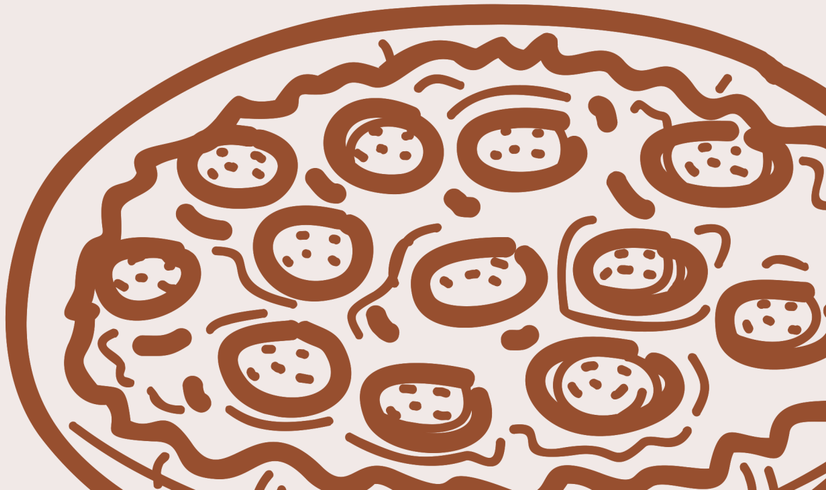
```sql
SELECT
    size as Pizza_Size, COUNT(order_id) AS total_orders
FROM
    pizzas p
        JOIN
    order_details od ON p.pizza_id = od.pizza_id
GROUP BY Pizza_Size
ORDER BY total_orders DESC
LIMIT 1;
```

Pizza_Size	total_orders
L	18526

List the top 5 most ordered pizza types along with their quantities.

```sql
SELECT
    pizza_type_id as Pizza_Type,
    COUNT(order_id) AS Total_Order_Placed,
    SUM(quantity) AS Total_Quantities_Ordered
FROM
    pizzas p
        JOIN
    order_details od ON p.pizza_id = od.pizza_id
GROUP BY Pizza_Type
ORDER BY Total_Order_Placed DESC
LIMIT 5;
```

Pizza_Type	Total_Order_Placed	Total_Quantities_Ordered
classic_dlx	2416	2453
bbq_ckn	2372	2432
hawaiian	2370	2422
pepperoni	2369	2418
thai_ckn	2315	2371



Join the necessary tables to find the quantity of each pizza CATEGORY ordered

```sql
SELECT
    category AS Pizza_Category,
    SUM(quantity) AS Total_qty_ordered
FROM
    pizza_types pt
        JOIN
    pizzas p ON pt.pizza_type_id = p.pizza_type_id
        JOIN
    order_details od ON p.pizza_id = od.pizza_id
GROUP BY Pizza_Category
ORDER BY Total_qty_ordered DESC;
```

Pizza_Category	Total_qty_ordered
Classic	14888
Supreme	11987
Veggie	11649
Chicken	11050

Determine the distribution of orders by hour of the day.

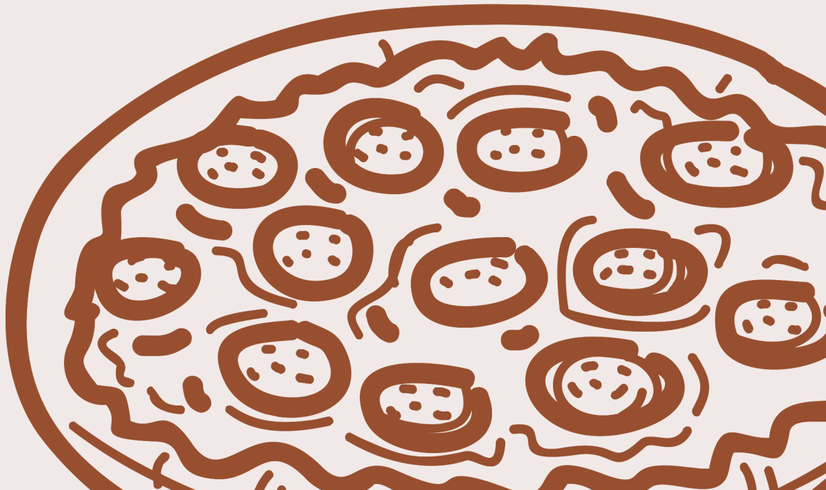
```sql
SELECT
    HOUR(order_time) AS Hour_of_day,
    COUNT(order_id) AS Order_Count
FROM
    orders
GROUP BY Hour_of_day
ORDER BY Order_Count DESC;
```

Hour_of_day	Order_Count
12	2520
13	2455
18	2399
17	2336
19	2009
16	1920
20	1642
14	1472
15	1468
11	1231
21	1198
22	663
23	28
10	8
9	1

Join relevant tables to find the category-wise distribution of pizzas.

```sql
SELECT
    category AS Pizza_Category,
    COUNT(pizza_type_id) AS Pizza_type_count
FROM
    pizza_types
GROUP BY Pizza_Category;
```

Pizza_Category	Pizza_type_count
Chicken	6
Classic	8
Supreme	9
Veggie	9



Group the orders by date and calculate the average number of pizzas ordered per day

```sql
SELECT
    ROUND(AVG(total_pizzas_ordered), 0) AS avg_orders_per_day
FROM
    (SELECT
        order_date, SUM(quantity) AS total_pizzas_ordered
    FROM
        orders o
    JOIN order_details od ON o.order_id = od.order_id
    GROUP BY order_date) AS orders_per_day;
```

avg_orders_per_day
138

Determine the top 3 most ordered pizza types based on revenue.

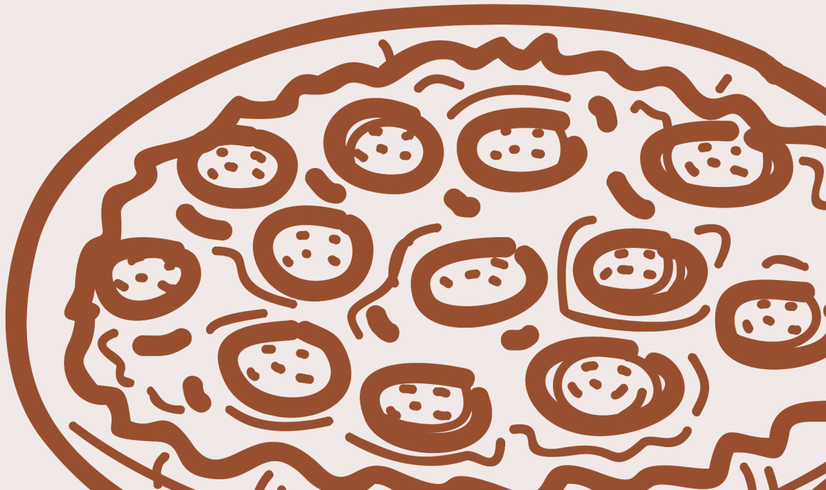
```sql
SELECT
    pt.name AS Pizza_Name, SUM(od.quantity * p.price) AS Revenue
FROM
    pizza_types pt
        JOIN
    pizzas p ON pt.pizza_type_id = p.pizza_type_id
        JOIN
    order_details od ON p.pizza_id = od.pizza_id
GROUP BY Pizza_Name
ORDER BY revenue DESC
LIMIT 3;
```

Pizza_Name	Revenue
The Thai Chicken Pizza	43434.25
The Barbecue Chicken Pizza	42768
The California Chicken Pizza	41409.5

Calculate the percentage contribution of each pizza category to total revenue

```sql
SELECT
    pt.category AS Pizza_Category,
    ROUND((SUM(od.quantity * p.price) / (SELECT
                    ROUND(SUM(od.quantity * p.price), 2) AS total_revenue
                FROM
                    pizzas p
                        JOIN
                    order_details od ON p.pizza_id = od.pizza_id)) * 100,
            2) AS Percentage_Contribution
FROM
    pizza_types pt
        JOIN
    pizzas p ON p.pizza_type_id = pt.pizza_type_id
        JOIN
    order_details od ON p.pizza_id = od.pizza_id
GROUP BY Pizza_Category
ORDER BY Percentage_Contribution DESC;
```

Pizza_Category	Percentage_Contribution
Classic	26.91
Supreme	25.46
Chicken	23.96
Veggie	23.68



Analyze the cumulative revenue generated over time.

```sql
select order_date, per_day_revenue,
round(sum(per_day_revenue) over(order by order_date),2)
as Cumulative_Revenue
from
(select o.order_date, round(sum(p.price*od.quantity),2)
as per_day_revenue
from orders o join order_details od
on o.order_id = od.order_id
join pizzas p on od.pizza_id = p.pizza_id
group by order_date) as day_rev;
```

order_date	per_day_revenue	Cumulative_Revenue
2015-01-01	2713.85	2713.85
2015-01-02	2731.9	5445.75
2015-01-03	2662.4	8108.15
2015-01-04	1755.45	9863.6
2015-01-05	2065.95	11929.55
2015-01-06	2428.95	14358.5
2015-01-07	2202.2	16560.7
2015-01-08	2838.35	19399.05
2015-01-09	2127.35	21526.4
2015-01-10	2463.95	23990.35
2015-01-11	1872.3	25862.65
2015-01-12	1919.05	27781.7
2015-01-13	2049.6	29831.3
2015-01-14	2527.4	32358.7
2015-01-15	1984.8	34343.5
2015-01-16	2594.15	36937.65
2015-01-17	2064.1	39001.75
2015-01-18	1976.85	40978.6

Determine the top 3 most ordered pizza types based on revenue for each pizza category.

```sql
select category, name, revenue
from
(select category, name, total_ordered, revenue,
rank() over (partition by category order by revenue desc)
as rn
from
(select pt.category, pt.name, sum(quantity) as total_ordered,
round(sum(p.price*od.quantity),2) as revenue
from pizza_types pt join pizzas p
on pt.pizza_type_id = p.pizza_type_id
join order_details od on p.pizza_id = od.pizza_id
group by category, pt.name) as a) as b
where rn <=3;
```

category	name	revenue
Chicken	The Thai Chicken Pizza	43434.25
Chicken	The Barbecue Chicken Pizza	42768
Chicken	The California Chicken Pizza	41409.5
Classic	The Classic Deluxe Pizza	38180.5
Classic	The Hawaiian Pizza	32273.25
Classic	The Pepperoni Pizza	30161.75
Supreme	The Spicy Italian Pizza	34831.25
Supreme	The Italian Supreme Pizza	33476.75
Supreme	The Sicilian Pizza	30940.5
Veggie	The Four Cheese Pizza	32265.7
Veggie	The Mexicana Pizza	26780.75
Veggie	The Five Cheese Pizza	26066.5

Dashboard Queries

1.Create a measure of total revenue

2. Create a measure of total no of orders

3. Create a measure of avg order value

4. Create a measure of total sales of pizzas

5. Create a measure of avg pizza per order

Visuals that we have to use while you making our reports

1. Find peek time of orders and show in bar chart

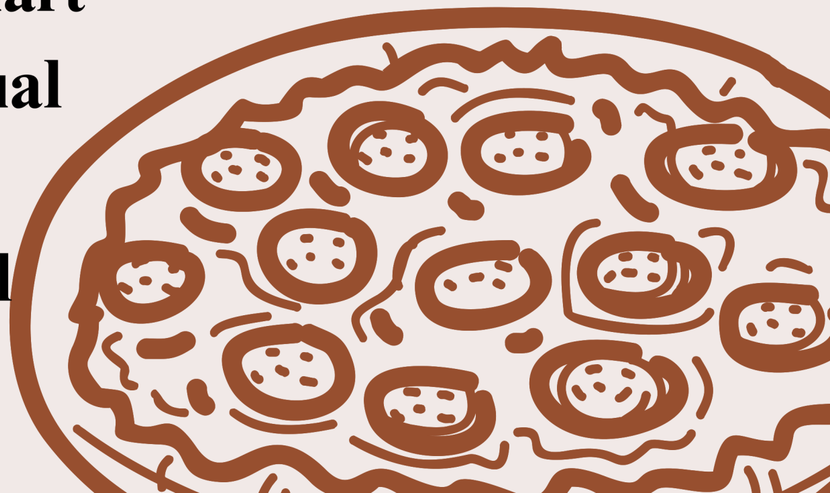
2. Find total revenue by pizza category and show in donut chart

3. Find Bottom 5 Selling pizza's and show in multi card visual

4. Find orders by weekdays and show in bar chart

5. Find Top 5 Selling pizza's and show in multi card visual

6. Find Top 5 Order Pizza's Size and show in piechart



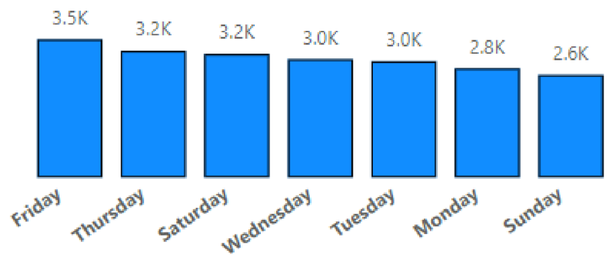
Pizza's Sales Analysis Dashboard

817.86K	21K	38	50K	2
Total Revenue	Total No of Orders	Average Order Value	Total Pizza Sold	Average Pizza Per Order

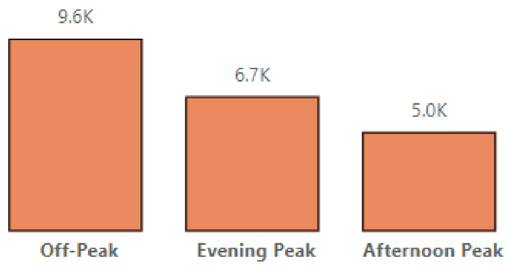
Pizza's Category

All

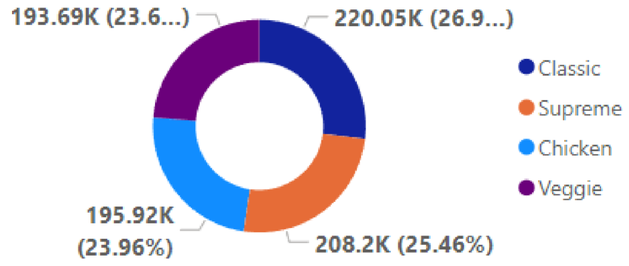
Total No of Orders by WeekDay_Names



Total No of Orders by Time Period



Total Revenue by Pizza_category



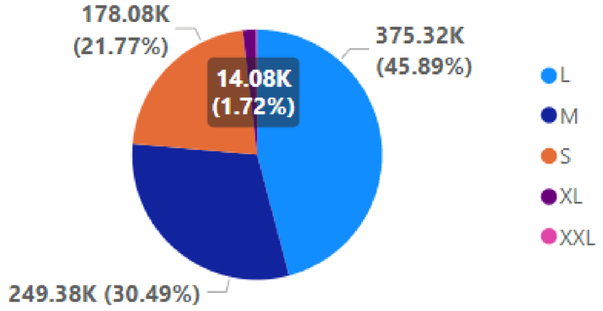
Bottom 5 Selling Pizza's

The Brie Carre Pizza	11,588.50 Total Revenue
The Green Garden Pizza	13,955.75 Total Revenue
The Mediterranean Pizza	15.360.50

Top 5 Selling Pizza's

The Barbecue Chicken Pizza	42,768.00 Total Revenue
The California Chicken Pizza	41,409.50 Total Revenue
The Classic Deluxe Pizza	38.180.50

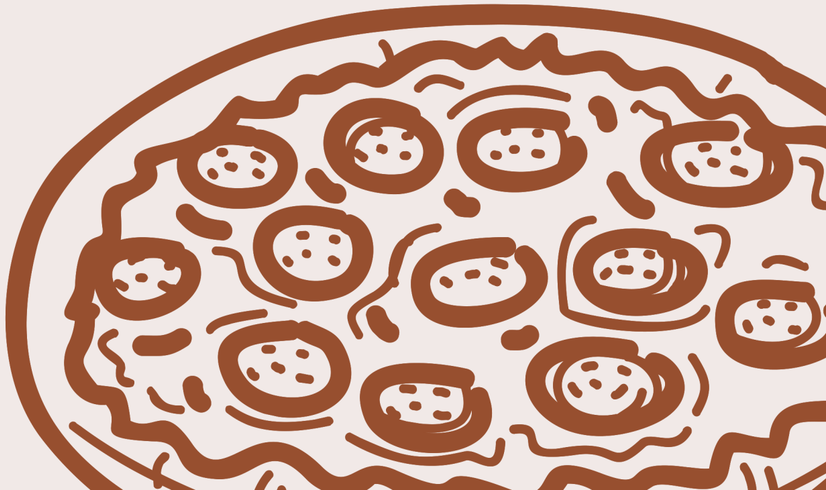
Total Revenue by size



Conclusion:

Our analysis using Power BI has provided valuable insights into our pizza sales and customer ordering behavior. By identifying peak order times, top and bottom-selling pizzas, and revenue contributions by category, we can make informed decisions to optimize our menu offerings, marketing strategies, and operational efficiencies. Understanding these key metrics allows us to better meet customer demand and drive business growth.

For more details of this project, *Click here* to navigate to my GitHub portfolio



Thank you !