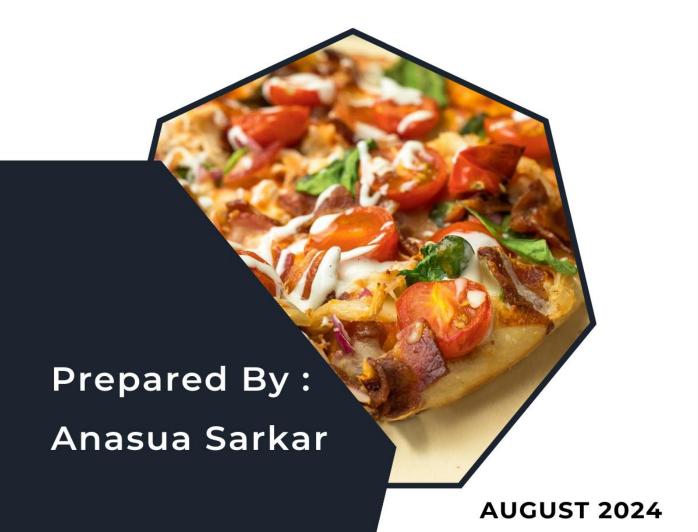
THE PIZZERIA

PIZZA SALES ANALYSIS REPORT

USING MYSQL



Introduction

In the competitive food industry, data-driven decision-making is essential for businesses to stay ahead. This project analyses pizza sales data to uncover valuable insights that can enhance a pizzeria's operational efficiency and profitability. By examining various aspects of sales, such as order frequency, revenue generation, and customer preferences, this analysis will provide a detailed understanding of the factors driving sales performance.

The project is structured into three levels of analysis: Basic, Intermediate, and Advanced. The Basic analysis addresses foundational questions such as total orders, revenue, and popular pizza types. The Intermediate analysis delves deeper into sales patterns, including hourly order distribution and category-wise pizza preferences. Finally, the Advanced analysis provides a more granular view of revenue contributions and the performance of pizza types within specific categories. Through this structured approach, the project aims to equip stakeholders with actionable insights that can guide menu optimisation, marketing strategies, and operational improvements, ultimately driving the business toward greater success.

Problem statement

The primary goal of this project is to conduct a comprehensive analysis of pizza sales data to gain insights into customer preferences, sales trends, and revenue generation. By leveraging SQL queries in MySQL, the project aims to address key questions that can inform business decisions, such as understanding which pizzas are most popular, identifying peak sales periods, and analyzing the revenue contribution of different pizza types. The insights derived from this analysis will help the business optimize its menu offerings, pricing strategy, and marketing efforts to maximize profitability and customer satisfaction.

Project Objectives:

The primary objectives of this project are to analyse the pizza sales data to achieve the following:

- Understand the overall sales performance and revenue generation.
- Identify customer preferences in terms of pizza types and sizes.
- Determine the distribution of sales over different times and categories.
- Analyse revenue contributions of various pizza types and categories.

Analysis Questions:

To achieve these objectives, the following specific questions will be addressed:

Basic Analysis:

- 1. Order Volume: What is the total number of orders placed? Revenue Calculation: How much total revenue has been generated from pizza sales?
- 2. Pricing Insight: Which pizza is the highest-priced?
- 3. Size Popularity: What is the most commonly ordered pizza size?
- 4. Top Pizza Types: Which are the top 5 most ordered pizza types and their respective quantities

Intermediate Analysis:

- 1. Category-Wise Sales: What is the total quantity of each pizza category ordered?
- 2. Hourly Sales Distribution: How are orders distributed by the hour of the day?
- 3. Category Distribution: How do pizza orders distribute across different categories?
- 4. Daily Order Trends: What is the average number of pizzas ordered per day, grouped by date?
- 5. Top Pizza Revenue: Which are the top 3 most ordered pizza types based on revenue.

Advanced Analysis:

- 1. Revenue Contribution: What is the percentage contribution of each pizza type to total revenue?
- 2. Cumulative Revenue: How has the cumulative revenue generated from pizza sales evolved over time?
- 3. Category-Specific Top Pizzas: What are the top 3 most ordered pizza types based on revenue within each pizza category?

Setting Up the Database for Pizza Sales Analysis

In this project, I initiated the process of analyzing pizza sales by setting up a MySQL database to store and organize the relevant data. The steps taken are as follows:

1. Creating the Database:

I started by creating a new database named PIZZERIA to hold all the tables and data required for the analysis.

```
1 • CREATE DATABASE PIZZERIA;2 • USE PIZZERIA;
```

2. Verifying Data Import:

After importing the data, I performed an initial check by selecting all records from the pizzas and pizza_types tables to ensure that the data was correctly loaded.

```
SELECT * FROM pizzas;
SELECT * FROM pizza_types;
```

3. Creating the orders Table:

Next, I created a table named orders to store details of each pizza order. This table includes columns for order_id, order_date, and order_time. The order_id column is set as the primary key to uniquely identify each order.

```
• CREATE TABLE orders(
    order_id int NOT NULL,
    order_date DATE NOT NULL,
    order_time TIME NOT NULL,
    PRIMARY KEY(order_id)
);
```

5 Oreating the order_details Table:

```
CREATE TABLE order_details(
order_details_id int NOT NULL,
order_id int NOT NULL,
pizza_id TEXT NOT NULL,
quantity INT NOT NULL,
PRIMARY KEY(order_details_id)
);
```

To capture the details of each order, I created the order_details table. This table stores information such as order_details_id, order_id, pizza_id, and quantity. The order_details_id is the primary key, ensuring each record is unique, while order_id acts as a foreign key to link to the orders table

5. Verification of Data Structure:

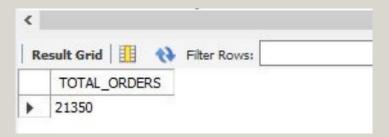
Finally, I verified the structure of the order_details and orders table by selecting all its records to ensure that ,the tables are correctly created and ready to store the data.

```
    SELECT * FROM orders;
    SELECT * FROM order_details;
```

Basic Analysis

1. Order Volume: What is the total number of orders placed? Revenue Calculation: How much total revenue has been generated from pizza sales?

```
-- Retrieve the total number of orders placed. --
SELECT (count(*))AS TOTAL_ORDERS FROM orders;
```



Total Order: 21350

2. Calculate the total revenue generated from pizza sales.

```
SELECT SUM(order_details.quantity * pizzas.price) AS TOTAL_SALES
FROM order_details

JOIN

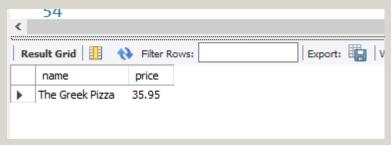
pizzas
ON order_details.pizza_id =pizzas.pizza_id;
```



Total Revenue: 817860 pounds

3. Pricing Insight: Which pizza is the highest-priced?

```
47  -- Identify the highest-priced pizza. --
48 • SELECT pizza_types.name, pizzas.price
49  FROM pizza_types
50  JOIN
51  pizzas
52  ON pizza_types.pizza_type_id = pizzas.pizza_type_id
53  ORDER BY pizzas.price DESC LIMIT 1;
54
```



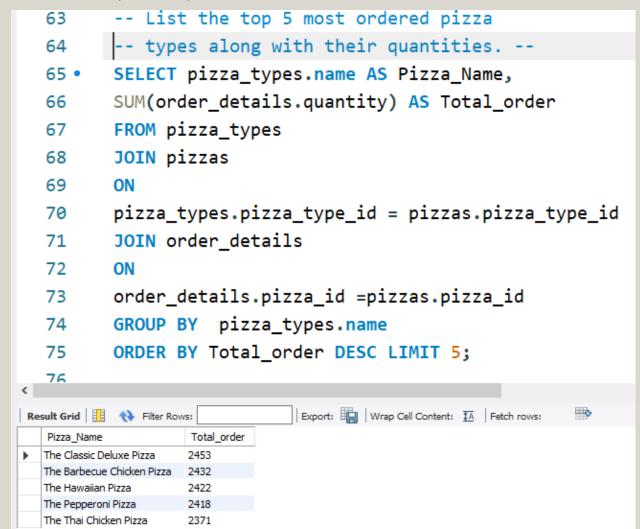
The highest priced pizza is: "The Greek Pizza"

4. Size Popularity: What is the most commonly ordered pizza size?

```
Identify the most common pizza size ordered.--
  54
  55 •
        SELECT pizzas.size, COUNT (order_details.pizza_id) AS Order_Count
        FROM pizzas
  56
  57
        JOIN
        order details
  58
        ON pizzas.pizza_id = order_details.pizza_id
  59
        GROUP BY pizzas.size
  60
        ORDER BY Order Count DESC LIMIT 1;
  61
  62
Export: Wrap Cell Content: A Fetch rows:
     Order_Count
      18526
▶ L
```

Most popular pizza size is "Large"

5. Top Pizza Types: Which are the top 5 most ordered pizza types and their respective quantities



The top five pizza type ordered is-

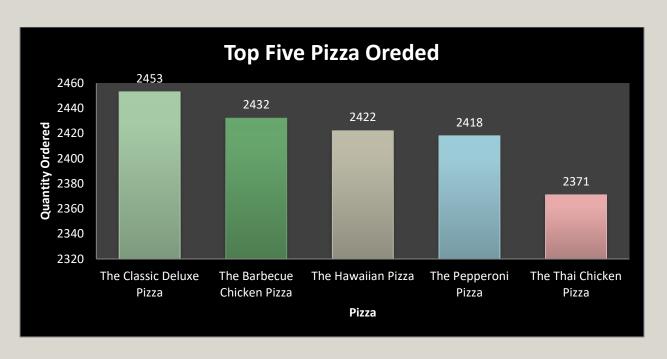
First is "The Classic Deluxe Pizza" with total number of order - 2453 pizzas.

Second "The Barbecue Chicken Pizza" with total number of order - 2432 pizzas.

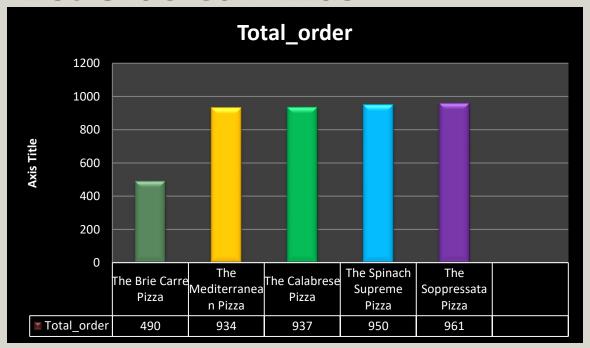
Third "The Hawaiian Pizza" with total number of order - 2422 pizzas.

Fourth "The Pepperoni Pizza" with total number of order - 2418 pizzas.

Fifth "The Thai chicken Pizza" with total number of order - 2371 pizzas.



List Ordered Pizzas



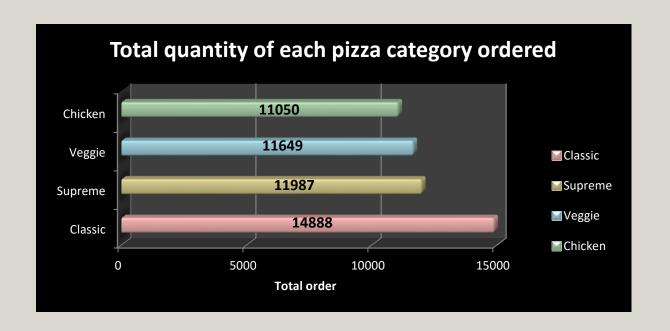
The list orderd pizzas are -

The Brie Carre Pizza with 490 orders only, The Mediterran Pizza with 934 orders only, The Calabrese Pizza with 937 orders only, The Spinach Supreme Pizza with 950 orders onl and The Soppressat Pizza with 961 orders only.

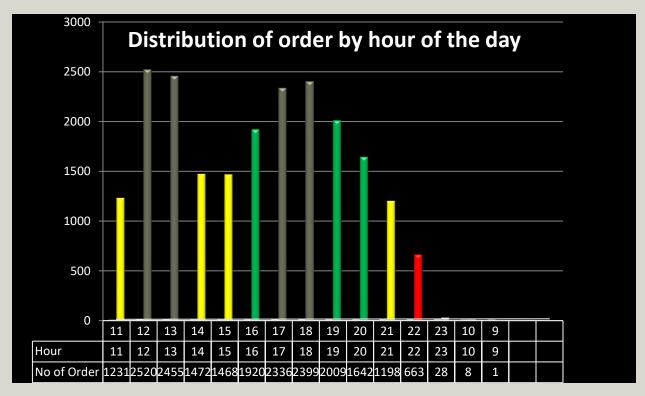
Intermediate Analysis

1. What is the total quantity of each pizza category ordered?

```
92 •
        SELECT pizza types.category ,
        SUM(order details.quantity) AS order_quantity
  93
        FROM pizza types
  94
        JOIN pizzas
  95
        ON pizza types.pizza type id = pizzas.pizza type id
  96
        JOIN order details
  97
        ON order details.pizza id = pizzas.pizza id
  98
        GROUP BY pizza types.category
  99
        ORDER BY order quantity DESC;
 100
 101
Export: Wrap Cell Content: IA
        order_quantity
 Classic
        14888
 Supreme
        11987
 Veggie
        11649
 Chicken
        11050
```

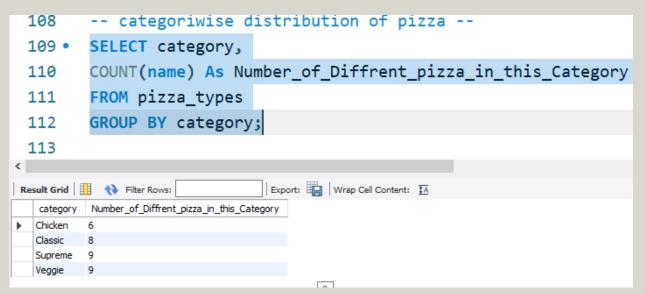


2. How are orders distributed by the hour of the day? -- Determine the distribution of -- orders by hour of the day. --SELECT hour(order_time) AS Hour, count(order_id) AS Number_of_Order FROM orders Export: Wrap Cell Content: IA Hour Number_of_Order



The busiest hours of the day are 12 pm to 2pm in the afternoon and 4 pm to 9pm.

1. Category Distribution: How do pizza orders distribute across different categories?

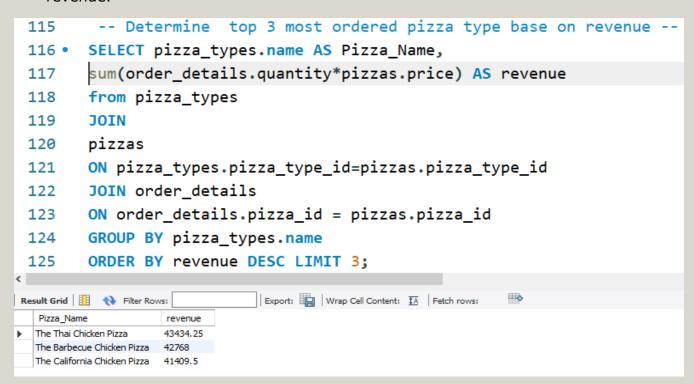


2. Daily Order Trends: What is the average number of pizzas ordered per day, grouped by date?

```
-- Group the orders by date and calculate
 107
        -- the avarage number of pizza ordered by date --
 108
        SELECT round(avg(quantity),0) AS avarage order per day FROM
 109 •
 110 ♀ (SELECT orders.order date, sum(order details.quantity) AS quantity
        FROM orders JOIN order details
 111
         ON orders.order id = order details.order id
 112
         GROUP BY
 113
         orders.order_date) AS order_quantity;
 114
Result Grid Filter Rows:
                            Export: Wrap Cell Content: IA
  avarage_order_per_day
138
```

Average Per day order is 138.

3. Pizza Revenue: Which are the top 3 most ordered pizza types based on revenue.



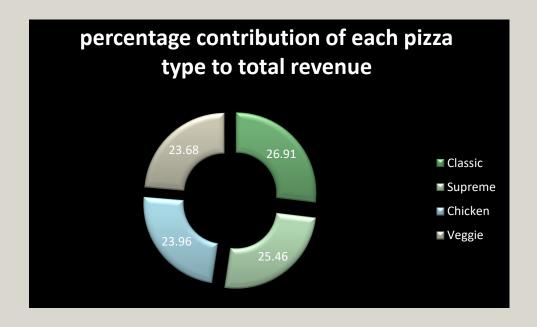
Top three revenue generating pizza is

- 1. The Thai Chicken Pizza
- 2. The Barbecue Chicken Pizza
- 3. The California Chicken Pizza

Advanced Analysis:

1. Revenue Contribution: What is the percentage contribution of each pizza type to total revenue?

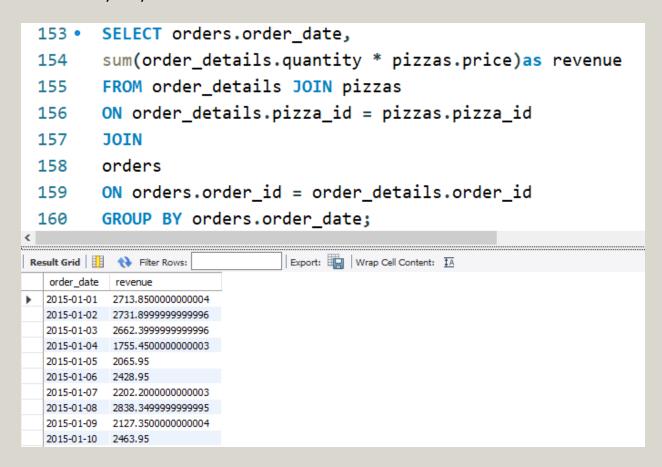
```
SELECT pizza_types.category,
p round(sum(order_details.quantity*pizzas.price)/ (SELECT
pround(sum(order_details.quantity * pizzas.price),
 2) AS TOTAL_SALES
   FROM order_details
    JOIN
              ON order_details.pizza_id =pizzas.pizza_id)*100,2) AS revenue
    pizzas
 from pizza types
 JOIN
 pizzas
 ON pizza_types.pizza_type_id=pizzas.pizza_type_id
 JOIN order details
 ON order_details.pizza_id = pizzas.pizza_id
 GROUP BY pizza_types.category
 ORDER BY revenue DESC;
```



2. Cumulative Revenue: How has the cumulative revenue generated from pizza sales evolved over time?

Step -1

Revenue by day:



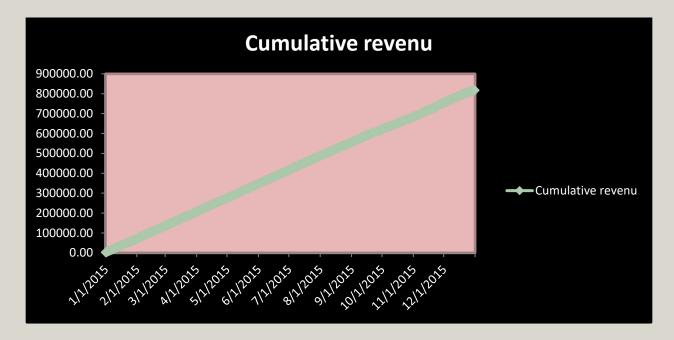
Step -2 Cumulative Revenue:

```
161
      -- step 2--
      SELECT order_date,
162 ·
163
      SUM(revenue) OVER(ORDER BY order_date) as cumulative_revenue
164
      FROM
165 ⊝ (SELECT orders.order_date,
      sum(order_details.quantity * pizzas.price)as revenue
166
      FROM order details JOIN pizzas
167
168
      ON order_details.pizza_id = pizzas.pizza_id
169
      JOIN
      orders
170
171
      ON orders.order id = order details.order id
172
      GROUP BY orders.order_date) AS Sales;
172
```

R	esult Grid 🎚	N Filter Rows:
	order_date	cumulative_revenue
•	2015-01-01	2713.8500000000004
	2015-01-02	5445.75
	2015-01-03	8108.15
	2015-01-04	9863.6
	2015-01-05	11929.55
	2015-01-06	14358.5
	2015-01-07	16560.7
	2015-01-08	19399.05
	2015-01-09	21526.4
	2015-01-10	23990.350000000002
	2015-01-11	25862.65
	2015-01-12	27781.7
	2015-01-13	29831.300000000003
	2015-01-14	32358.700000000004
	2015-01-15	34343.50000000001
	2015-01-16	36937.65000000001
	2015-01-17	39001.75000000001
	2015-01-18	40978.600000000006
	2015-01-19	43365.75000000001
1		

The cumulative revenue data tracks the total revenue generated by the business over a specific period. This metric is crucial for understanding the overall financial performance and growth trajectory of the business.

The data indicates a consistent increase in cumulative revenue over the specified period. This upward trend suggests a steady flow of sales, which is a positive sign for the business's financial health.



2. Category-Specific Top Pizzas: What are the top 3 most ordered pizza types based on revenue within each pizza category?

Step-1: Calculating Revenue for Each Pizza Type

In this step, the revenue for each pizza type was calculated by summing the product of the quantity ordered and the price of each pizza. This was done for each pizza type within its respective category. The SQL query for this step is as follows:

```
-- Determine the top 3 most ordered pizza type
175
       -- Based on revenue for each pizza category
176
177
       -- Step - 1
      SELECT pizza types.category, pizza types.name,
178 •
       sum((order_details.quantity)*pizzas.price) AS revenue
179
       FROM pizza_types JOIN pizzas
180
      ON pizza_types.pizza_type_id = pizzas.pizza type id
181
       JOIN order details
182
       ON order_details.pizza_id = pizzas.pizza_id
183
184
       GROUP BY pizza types.category,pizza types.name;
```

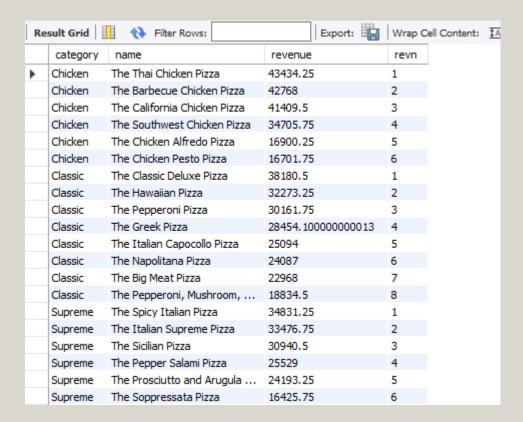
Re	esult Grid	Note:	Export: Wrap Cell Content:]
	category	name	revenue
•	Classic	The Hawaiian Pizza	32273.25
	Classic	The Classic Deluxe Pizza	38180.5
	Veggie	The Five Cheese Pizza	26066.5
	Supreme	The Italian Supreme Pizza	33476.75
	Veggie	The Mexicana Pizza	26780.75
	Chicken	The Thai Chicken Pizza	43434.25
	Supreme	The Prosciutto and Arugula Pizza	24193.25
	Chicken	The Barbecue Chicken Pizza	42768
	Classic	The Greek Pizza	28454.100000000013
	Supreme	The Spinach Supreme Pizza	15277.75
	Veggie	The Green Garden Pizza	13955.75
	Classic	The Italian Capocollo Pizza	25094
	Supreme	The Spicy Italian Pizza	34831.25
	Veggie	The Spinach Pesto Pizza	15596
	Veggie	The Vegetables + Vegetables Pi	24374.75
	Chicken	The Southwest Chicken Pizza	34705.75
	Chicken	The California Chicken Pizza	41409.5
	Classic	The Pepperoni Pizza	30161.75
	Chicken	The Chicken Pesto Pizza	16701 75

Step-2: Ranking Pizzas by Revenue Within Each Category

After calculating the revenue, pizzas were ranked within their categories based on the revenue generated. This was done using the RANK() function,

which assigns a rank to each pizza type within its category according to its revenue. The SQL query for this step is:

```
184
      -- Step -2
185 ·
      SELECT category, name, revenue,
      RANK() OVER(PARTITION BY category ORDER BY revenue DESC) AS revn
186
187
     FROM
sum((order_details.quantity)*pizzas.price) AS revenue
189
      FROM pizza types JOIN pizzas
190
     ON pizza_types.pizza_type_id = pizzas.pizza_type_id
191
192
      JOIN order_details
      ON order_details.pizza_id = pizzas.pizza_id
193
194
      GROUP BY pizza_types.category,pizza_types.name) AS table_a;
```



Step: 3: Selecting the Top 3 Pizzas per Category

Finally, the top 3 pizzas in terms of revenue for each category were selected. This step filtered the ranked pizzas to include only those with a rank of 1, 2, or 3. The SQL query used is:

```
196 •
       SELECT category, name, revenue, pizza rank
197
       FROM
198 ⊖ (SELECT category, name, revenue,
       RANK() OVER(PARTITION BY category ORDER BY revenue DESC) AS pizza rank
199
200
      FROM
    201
202
       sum((order_details.quantity)*pizzas.price) AS revenue
203
       FROM pizza_types JOIN pizzas
204
      ON pizza types.pizza type id = pizzas.pizza type id
       JOIN order details
205
       ON order details.pizza id = pizzas.pizza id
206
       GROUP BY pizza types.category,pizza_types.name) AS table_a) AS table_b
207
       WHERE pizza rank<=3;
208
```

-	sult Grid	Filter Rows:	Export:	Wrap Cell Co	interit.
	category	name	revenue	pizza_rank	
•	Chicken	The Thai Chicken Pizza	43434.25	1	
	Chicken	The Barbecue Chicken Pizza	42768	2	
	Chicken	The California Chicken Pizza	41409.5	3	
	Classic	The Classic Deluxe Pizza	38180.5	1	
	Classic	The Hawaiian Pizza	32273.25	2	
	Classic	The Pepperoni Pizza	30161.75	3	
	Supreme	The Spicy Italian Pizza	34831.25	1	
	Supreme	The Italian Supreme Pizza	33476.75	2	
	Supreme	The Sicilian Pizza	30940.5	3	
	Veggie	The Four Cheese Pizza	32265.70000000065	1	
	Veggie	The Mexicana Pizza	26780.75	2	
	Veggie	The Five Cheese Pizza	26066.5	3	

The query successfully returned the top 3 most ordered pizza types based on revenue for each category. These results can now be used to gain insights into which pizzas are driving the most revenue and could help in making informed business decisions such as menu adjustments, targeted promotions, or inventory prioritization.

The analysis identified the top 3 most ordered pizza types based on revenue for each category. Below is a summary of the findings:

Chicken Category:

- 1. The Thai Chicken Pizza \$43,434.25
- 2. The Barbecue Chicken Pizza \$42,768.00
- 3. The California Chicken Pizza \$41,409.50

Classic Category:

- 1. The Classic Deluxe Pizza \$38,180.50
- 2. The Hawaiian Pizza \$32,273.25
- 3. The Pepperoni Pizza \$30,161.75

Supreme Category:

- 1. The Spicy Italian Pizza \$34,831.25
- 2. The Italian Supreme Pizza \$33,476.75
- 3. The Sicilian Pizza \$30,940.50

Veggie Category:

- 1. The Four Cheese Pizza \$32,265.70
- 2. The Mexicana Pizza \$26,780.75
- 3. The Five Cheese Pizza \$26,066.50

Explanation

The results show that each category has a distinct set of top performers. For example, in the Chicken category, The Thai Chicken Pizza leads with the highest revenue, followed closely by The Barbecue Chicken Pizza and The California Chicken Pizza. Similarly, in the Classic category, The Classic Deluxe Pizza generates the most revenue, while in the Supreme category,

The Spicy Italian Pizza ranks first. For the Veggie category, The Four Cheese Pizza is the top-seller.

The query successfully returned the top 3 most ordered pizza types based on revenue for each category. These results can now be used to gain insights into which pizzas are driving the most revenue and could help in making informed business decisions such as menu adjustments, targeted promotions, or inventory prioritization.

Conclusion

The pizzeria sales analysis provided insightful data that can significantly inform business strategies and decision-making processes.

Order Volume & Revenue: The pizzeria has achieved a substantial total order volume of 21,350 orders, resulting in total revenue of £817,860. These figures demonstrate a strong market demand and effective sales strategies.

<u>Top Performers:</u> The analysis revealed that "The Greek Pizza" is the highest-priced item on the menu, while "The Classic Deluxe Pizza" is the most popular, with 2,453 orders. Additionally, the "Large" size is the most commonly ordered, indicating customer preference for larger portions. The top five pizzas, led by "The Classic Deluxe Pizza," collectively dominate the menu, highlighting key products that drive sales.

<u>Category Insights:</u> The sales data indicates a fairly balanced distribution across different pizza categories, with the "Classic" category

leading in total orders (14,888 pizzas). The chicken-based pizzas, particularly "The Thai Chicken Pizza," have emerged as significant contributors to revenue, underlining the popularity of this flavor profile among customers.

Hourly and Daily Trends: Peak order times were identified between 12 PM to 2 PM and 4 PM to 9 PM, aligning with typical lunch and dinner hours. The average daily order volume stands at 138, providing a baseline for operational planning and staffing.

Revenue Contribution: Each pizza category contributes significantly to the total revenue, with "Classic" pizzas contributing the most (26.91%), followed closely by "Supreme," "Chicken," and "Veggie" categories. This distribution suggests that while all categories are important, focusing on the top-performing categories could yield greater financial benefits.

Strategic Implications

The findings highlight the need to possibly prioritize inventory for top-selling pizzas and consider promotional strategies for the less popular ones. Additionally, the distinct peak order hours suggest a targeted approach in staffing and resource allocation during these times to optimize customer service and operational efficiency.

Final Thoughts

This analysis has provided a clear picture of the pizzeria's sales dynamics, revealing both strengths and opportunities for growth. By leveraging these insights, the pizzeria can enhance its product offerings, optimize operations, and ultimately increase profitability.