

# Data-Driven Insights for Pizza Sales:

From Analysis to Actionable Business Strategies

#### PROJECT OVERVIEW

In this project, I conducted a comprehensive analysis of pizza sales data to uncover actionable insights and drive strategic business decisions. Leveraging a robust dataset comprising orders, order details, pizzas, and pizza types, i employed advanced SQL téchniques to transform raw data into meaningful intelligence.

#### Approach:

1. Advanced SQL Analytics: Leveraged complex JOIN operations, subqueries, Common Table Expressions (CTEs) for multi-dimensional data integration and window functions for sophisticated time-based analyses and ranking evaluations.

2. Sales and Trend Analysis: Analyzed temporal sales

patterns to identify peak periods and seasonal

trends

3. Customer Segmentation and Behavior: Segmented customers based on purchasing behavior and order frequency.Derived insights into customer preferences and loyalty trends.
4. Product Performance Evaluation: Evaluated sales

volume, revenue, and profitability metrics for each

pizza category to identify top performers.

#### **DATASET OVERVIEW**

This pizza sales dataset offers a comprehensive overview of transactional data from a pizza restaurant over the course of a year. It provides detailed insights into customer orders, including pizza specifications, order times, and pricing information.

#### Dataset Composition includes four tables:

- 1.Orders: Contains order\_id, date, time, and customer\_id
- 2.Order\_details: Includes order\_id, pizza\_id, and quantity
- 3.Pizzas: Stores pizza\_id, pizza\_type\_id, size, and price
- 4. Pizza\_types: Contains pizza\_type\_id, name, category, and ingredients

### **KEY PROBLEMS**

I leveraged SQL to extract meaningful insights across various complexity levels, addressing key business questions:

- 1. Retrieve the total number of orders placed.
- 2. Calculate the total revenue generated from pizza sales.
- 3. Identify the highest-priced pizza.
- 4. Identify the most common pizza size ordered.
- 5. List the top 5 most ordered pizza types along with their quantities.
- 6. Join the necessary tables to find the total quantity of each pizza category ordered.
- 7. Determine the distribution of orders by hour of the day.

- 8. Join relevant tables to find the category-wise distribution of pizzas.
- 9. Group the orders by date and calculate the average number of pizzas ordered per day.
- 10. Determine the top 3 most ordered pizza types based on revenue.
- 11. Calculate the percentage contribution of each pizza type to total revenue.
- 12. Analyze the cumulative revenue generated over time.
- 13. Determine the top 3 most ordered pizza types based on revenue for each pizza category.

#### Total number of orders placed

#### **QUERY**

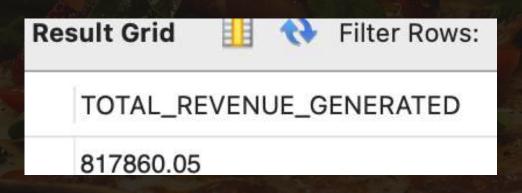
SELECT
COUNT(order\_id) AS TOTAL\_ORDERS
FROM order\_details;



#### Total revenue generated from pizza sales

#### **QUERY**

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



#### The Highest-priced pizza

#### **QUERY**

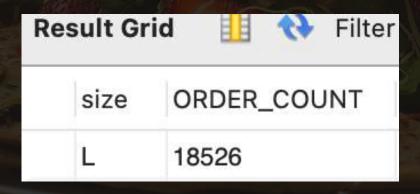
```
SELECT
pizza_types.pizza_type_id,
pizzas.price
FROM pizza_types
JOIN pizzas
ON pizza_types.pizza_type_id = pizzas.pizza_type_id
ORDER BY pizzas.price DESC LIMIT 1;
```



#### Most common pizza size ordered

#### **QUERY**

```
pizzas.size,
COUNT(order_details.order_details_id) AS ORDER_COUNT
FROM pizzas
JOIN order_details
ON pizzas.pizza_id = order_details.pizza_id
GROUP BY pizzas.size
ORDER BY ORDER_COUNT DESC
LIMIT 1;
```



#### Top 5 most ordered pizza types along with their quantities

#### <u>QUERY</u>

**SELECT** 

pizza\_types.name,

SUM(order\_details.quantity) AS QUANTITY

FROM pizzas

JOIN order\_details

ON pizzas.pizza\_id = order\_details.pizza\_id

JOIN pizza\_types

ON pizzas.pizza\_type\_id = pizza\_types.pizza\_type\_id

**GROUP BY 1** 

ORDER BY 2 DESC

LIMIT 5

Result Grid	lows: Q Se
name	QUANTITY
The Classic Deluxe Pizza	2453
The Barbecue Chicken Pizza	2432
The Hawaiian Pizza	2422
The Pepperoni Pizza	2418
The Thai Chicken Pizza	2371

#### Total quantity of each pizza category ordered

#### **QUERY**

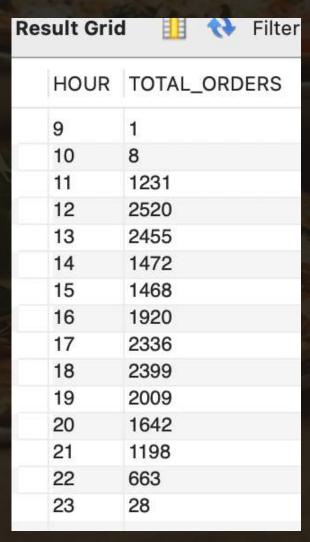
SELECT
pizza\_types.category,
SUM(order\_details.quantity) AS QUANTITY
FROM pizzas
JOIN pizza\_types
ON pizzas.pizza\_type\_id = pizza\_types.pizza\_type\_id
JOIN order\_details
ON pizzas.pizza\_id = order\_details.pizza\_id
GROUP BY 1

Result Grid	II 💎 Filter Rows:
category	QUANTITY
Classic	14888
Veggie	11649
Supreme	11987
Chicken	11050

#### Distribution of orders by hour of the day

#### **QUERY**

SELECT
HOUR(orders.time) AS HOUR,
COUNT(orders.order\_id) AS TOTAL\_ORDERS
FROM orders
GROUP BY 1
ORDER BY 1



## Category-wise distribution of pizzas

#### **QUERY**

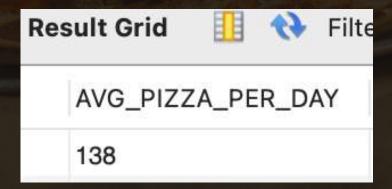
SELECT
pizza\_types.category,
COUNT(\*) AS DISTRIBUTION\_OF\_PIZZA
FROM pizza\_types
GROUP BY 1

Result Grid	Filter Rows: Q Se	arch
category	DISTRIBUTION_OF_PIZZ	ZA
Chicken	6	
Classic	8	
Supreme	9	
Veggie	9	

#### Average number of pizzas ordered per day

# <u>QUERY</u>

```
SELECT
ROUND(AVG(QUANTITY),0) AS AVG_PIZZA_PER_DAY
FROM
SELECT
orders.date,
SUM(order_details.quantity) AS QUANTITY
FROM orders
JOIN order_details
ON orders.order_id = order_details.order_id
GROUP BY 1
)A
```



#### Top 3 most ordered pizza types based on revenue

#### **QUERY**

```
SELECT
pizza_types.name,
SUM(order_details.quantity * pizzas.price) AS REVENUE
FROM pizzas
JOIN pizza_types
ON pizzas.pizza_type_id = pizza_types.pizza_type_id
JOIN order_details
ON pizzas.pizza_id = order_details.pizza_id
GROUP BY 1
ORDER BY 2 DESC
LIMIT 3
```

Result Grid	lows: Q s
name	REVENUE
The Thai Chicken Pizza	43434.25
The Barbecue Chicken Pizza	42768
The California Chicken Pizza	41409.5

# Percentage contribution of each pizza type to total revenue

#### **QUERY**

```
WITH CTE AS(
SELECT
ROUND(SUM(order_details.quantity * pizzas.price),2) AS TOTAL_REVENUE
FROM order_details
JOIN pizzas
ON order_details.pizza_id = pizzas.pizza_id
SELECT
pizza_types.category AS PIZZA,
ROUND((SUM(pizzas.price *
order_details.quantity)/CTE.TOTAL_REVENUE)*100,2) AS
REVENUE_PERCENTAGE
FROM pizzas
JOIN pizza_types
ON pizzas.pizza_type_id = pizza_types.pizza_type_id
JOIN order_details
ON pizzas.pizza_id = order_details.pizza_id
CROSS JOIN CTE
GROUP BY 1,CTE.TOTAL_REVENUE
ORDER BY 2 DESC
```

Percentage contribution of each pizza type to total revenue

Result Grid	Filter Rows: Q Sea	
PIZZA	REVENUE_PERCENTAGE	
Classic	26.91	
Supreme	25.46	
Chicken	23.96	
Veggie	23.68	

#### Cumulative revenue generated over time

```
QUERY
SELECT
DATE,
ROUND(SUM(REVENUE) OVER(ORDER BY DATE),2) AS
CUMULATIVE_REVENUE
FROM
SELECT
orders.date AS DATE,
SUM(order_details.quantity * pizzas.price) AS REVENUE
FROM order_details
JOIN pizzas
ON order_details.pizza_id = pizzas.pizza_id
JOIN orders
ON orders.order_id = order_details.order_id
GROUP BY 1
)A
```

# Cumulative revenue generated over time

Result Grid	III 🛟 Filter Rows: 🔾
DATE	CUMULATIVE_REVENUE
2015-01-01	2713.85
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	23990.35
2015-01-11	25862.65
2015-01-12	27781.7
2015-01-13	29831.3
2015-01-14	32358.7
2015-01-15	34343.5
2015-01-16	36937.65
2015-01-17	39001.75
2015-01-18	40978.6
2015-01-19	43365.75
2015-01-20	45763.65

# Top 3 most ordered pizza types based on revenue for each pizza category

#### **QUERY**

```
SELECT
PIZZA_NAME,
REVENUE,
ORDER_RANKING
FROM
(SELECT
PIZZA_CATEGORY,
PIZZA_NAME,
REVENUE,
RANK() OVER(PARTITION BY PIZZA_CATEGORY ORDER BY
REVENUE DESC) AS ORDER_RANKING
FROM
SELECT
pizza_types.category AS PIZZA_CATEGORY,
pizza_types.name AS PIZZA_NAME,
SUM(pizzas.price * order_details.quantity) AS REVENUE
FROM pizzas
JOIN pizza_types
ON pizzas.pizza_type_id = pizza_types.pizza_type_id
JOIN order_details
ON pizzas.pizza_id = order_details.pizza_id
GROUP BY 1,2
)A
)B
WHERE ORDER_RANKING <= 3
```

# Cumulative revenue generated over time

PIZZA_NAME	REVENUE	ORDER_RANKING
The Thai Chicken Pizza	43434.25	1
The Barbecue Chicken Pizza	42768	2
The California Chicken Pizza	41409.5	3
The Classic Deluxe Pizza	38180.5	1
The Hawaiian Pizza	32273.25	2
The Pepperoni Pizza	30161.75	3
The Spicy Italian Pizza	34831.25	1
The Italian Supreme Pizza	33476.75	2
The Sicilian Pizza	30940.5	3
The Four Cheese Pizza	32265.70000000065	1
The Mexicana Pizza	26780.75	2

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