

SQL Project

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Project Overview

This project analyzes pizza sales data to uncover key business insights, including total orders, revenue, and popular pizza sizes and types. We will also examine order patterns by time, pizza categories, and revenue contributions. Additionally, we will address important business-related questions, which you will see further in the slides, providing actionable insights to optimize sales strategies and better understand customer preferences.

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1. What is the Total Number of Orders Placed?

Objective:

To calculate the total number of pizza orders.

Importance:

Knowing the total orders helps assess overall customer demand and business performance.

Approach:

We will count all unique orders in the dataset to determine the total number placed.

```
SELECT count(order_id) as total_orders FROM orders;
```

| total_orders |
|--------------|
| 21350 |

2. What is the Total Revenue Generated from Pizza Sales?

Objective: To calculate the total revenue from all pizza sales.

Importance: Understanding total revenue is crucial for evaluating business profitability and financial performance.

Approach: We will sum up the sales amounts from all orders to determine the total revenue generated.

SELECT

```
ROUND(SUM(order_details.quantity * pizzas.price),  
      2) AS total_sales
```

FROM

```
order_details
```

JOIN

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

| total_sales |
|-------------|
| 817860.05 |

3. What is the Highest-Priced Pizza?

Objective: To identify the pizza with the highest price on the menu.

Importance: Knowing the highest-priced pizza helps understand premium offerings and potential high-revenue products.

Approach: We will analyze the pricing data to find the pizza with the highest listed price.

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

| name | price |
|-----------------|-------|
| The Greek Pizza | 35.95 |

4. What is the Most Common Pizza Size Ordered?

Objective: To find the most frequently ordered pizza size.

Importance: Revealing popular sizes helps understand customer preferences and optimize inventory.

Approach: We will analyze order data to identify which pizza size appears most often.

```
SELECT
    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;
```

| size | order_count |
|------|-------------|
| L | 18526 |
| M | 15385 |
| S | 14137 |
| XL | 544 |
| XXL | 28 |

5. What are the Top 5 Most Ordered Pizza Types?

Objective: To identify the top five most frequently ordered pizza types.

Importance: Understanding popular pizzas helps inform menu design and marketing strategies.

Approach: We will count the orders for each pizza type and rank them to find the top five.

```
SELECT
    pizza_types.name, SUM(order_details.quantity) AS quantity
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.name
ORDER BY quantity DESC
LIMIT 5;
```

| 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 |

6. What is the Total Quantity of Each Pizza Category Ordered?

Objective: To calculate the total quantity ordered for each pizza category.

Importance: This reveals demand trends for different pizza categories.

Approach: We will sum the quantities ordered across each category using table joins.

SELECT

```
    pizza_types.category,  
    SUM(order_details.quantity) AS quantity  
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 quantity DESC;
```

| category | quantity |
|----------|----------|
| Classic | 14888 |
| Supreme | 11987 |
| Veggie | 11649 |
| Chicken | 11050 |

7. What is the Distribution of Orders by Hour of the Day?

Objective: To analyze how orders are distributed throughout the day.

Importance: Understanding order distribution by hour helps identify peak sales times.

Approach: We will analyze order timestamps to calculate the number of orders for each hour.

```
SELECT  
    HOUR(order_time), COUNT(order_id) as order_count  
FROM  
    orders  
GROUP BY HOUR(order_time);
```

| HOUR(order_time) | order_count |
|------------------|-------------|
| 11 | 1231 |
| 12 | 2520 |
| 13 | 2455 |
| 14 | 1472 |
| 15 | 1468 |
| 16 | 1920 |
| 17 | 2336 |
| 18 | 2399 |
| 19 | 2009 |
| 20 | 1642 |
| 21 | 1198 |
| 22 | 663 |

8. What is the Category-Wise Distribution of Pizzas?

Objective: To determine the distribution of pizzas across different categories.

Importance: This analysis helps understand the popularity of various pizza categories.

Approach: We will join relevant tables and calculate the total orders for each pizza category to see their distribution.

```
SELECT category, COUNT(name)  
FROM pizza_types  
GROUP BY category;
```

| category | COUNT(name) |
|----------|-------------|
| Chicken | 6 |
| Classic | 8 |
| Supreme | 9 |
| Veggie | 9 |

9. What is the Average Number of Pizzas Ordered Per Day?

Objective: To calculate the average number of pizzas ordered each day.

Importance: This metric helps assess daily sales trends and customer behavior over time.

Approach: We will group orders by date and compute the average quantity of pizzas ordered per day.

```
SELECT  
    ROUND(AVG(quantity), 0) as avg_pizza_ordered_per_day  
FROM  
    (SELECT  
        orders.order_date, SUM(order_details.quantity) AS quantity  
    FROM  
        orders  
    JOIN order_details ON orders.order_id = order_details.order_id  
    GROUP BY orders.order_date) AS order_quantity;
```

avg_pizza_ordered_per_day

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10. What are the Top 3 Most Ordered Pizza Types Based on Revenue?

Objective: To identify the top three pizza types that generate the most revenue.

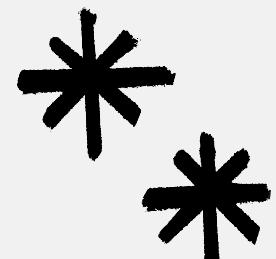
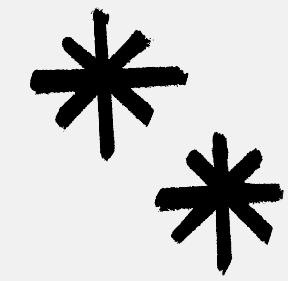
Importance: This analysis highlights high-revenue pizzas, informing pricing and marketing strategies.

Approach: We will calculate the revenue generated by each pizza type and rank them to find the top three.

SELECT

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

| name | revenue |
|------------------------------|----------------|
| The Thai Chicken Pizza | 43434.25 |
| The Barbecue Chicken Pizza | 42768 |
| The California Chicken Pizza | 41409.5 |



11. What is the Percentage Contribution of Each Pizza Type to Total Revenue?

Objective: To determine each pizza type's contribution to overall revenue.

Importance: Understanding revenue distribution helps identify which pizzas drive sales and informs business strategy.

Approach: We will calculate the revenue for each pizza type and express it as a percentage of the total revenue

```
SELECT
    pizza_types.category ,
    round(SUM(order_details.quantity * pizzas.price) / (SELECT
        ROUND(SUM(order_details.quantity * pizzas.price),
        2) AS total_sales
    )
)
FROM
    order_details
        JOIN
            pizzas ON pizzas.pizza_id = order_details.pizza_id) * 100,2) as revenue
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;
```

| category | revenue |
|----------|---------|
| Classic | 26.91 |
| Supreme | 25.46 |
| Chicken | 23.96 |
| Veggie | 23.68 |

12. What is the Cumulative Revenue Generated Over Time?

Objective: To analyze the total revenue generated over a specified period.

Importance: Tracking cumulative revenue helps identify sales trends and growth over time.

Approach: We will sum the daily revenues to calculate the cumulative revenue across the analysis period.

```
select order_date,  
sum(revenue) over(order by order_date) as cum_revenue  
from  
(select orders.order_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 orders.order_date) as sales ;
```

| order_date | cum_revenue |
|------------|-------------------|
| 2015-01-01 | 2713.850000000000 |
| 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 |

13. What are the Top 3 Most Ordered Pizza Types Based on Revenue for Each Category?

Objective: To identify the top three revenue-generating pizzas in each category.

Importance: This highlights high-performing pizzas, guiding marketing and menu decisions.

Approach: We will calculate and rank revenue for each pizza type within each category to find the top three.

```
select name, revenue from
(select category, name, revenue,
rank() over(partition by category order by revenue desc) as rn
from
(select pizza_types.category, pizza_types.name,
sum((order_details.quantity) * pizzas.price) as revenue
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, pizza_types.name) as a) as b
where rn <= 3;
```

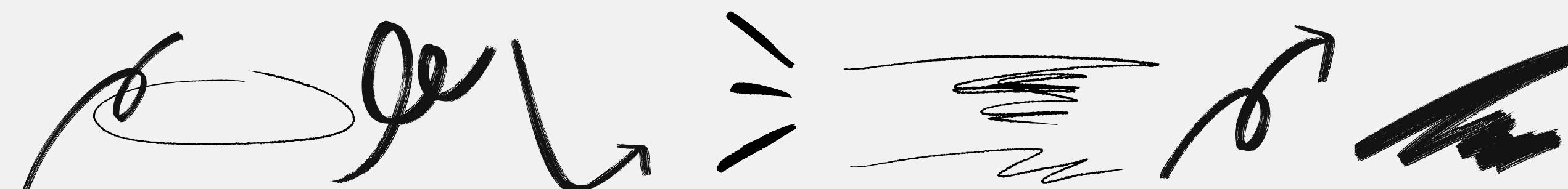
| name | revenue |
|------------------------------|----------|
| The Thai Chicken Pizza | 43434.25 |
| The Barbecue Chicken Pizza | 42768 |
| The California Chicken Pizza | 41409.5 |
| The Classic Deluxe Pizza | 38180.5 |
| The Hawaiian Pizza | 32273.25 |
| The Pepperoni Pizza | 30161.75 |
| The Spicy Italian Pizza | 34831.25 |
| The Italian Supreme Pizza | 33476.75 |
| The Sicilian Pizza | 30940.5 |

Conclusion

This project offers a comprehensive analysis of pizza sales data, uncovering valuable insights into customer behavior and business performance. By examining total orders, revenue contributions, and the popularity of various pizza types, we gain a deeper understanding of market trends and customer preferences.

The analysis reveals critical information that can inform strategic decisions, such as optimizing inventory management, refining marketing strategies, and enhancing menu offerings. Identifying peak sales times and understanding category-wise performance allows for better resource allocation and targeted promotions.

Ultimately, the findings from this project will support informed decision-making that drives business growth, enhances customer satisfaction, and ensures that our pizza offerings meet market demand effectively. This data-driven approach positions the business to respond proactively to changing consumer trends and capitalize on opportunities for increased profitability.



Thank you

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