

PIZZA SALES ANALYSIS USING SQL



INTRODUCTION

"Hello everyone, I'm Tanuj, an aspiring data analyst. In this project, I've conducted a comprehensive pizza sales analysis using SQL queries to tackle key business challenges. Through this analysis, I aim to uncover insights that can inform business decisions and drive growth in the pizza industry."



OBJECTIVE

- To conduct a comprehensive analysis of pizza sales data using SQL queries to uncover key insights and trends, and to provide actionable recommendations to increase sales and drive business growth.
- **Specifically, this project aims to:**
 1. Analyze sales trends and patterns to identify opportunities for growth-Identify top-selling pizza types, sizes, and categories to inform menu engineering and marketing strategies
 2. Determine the distribution of orders by hour, day, and month to optimize staffing and inventory management-Calculate revenue contribution by pizza type and category to identify areas for improvement. Develop data-driven insights to support business decisions and drive growth in the pizza industry.
 - 3.



QUESTIONS THAT WILL BE ANSWERED:-

BASIC :

- 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.

Intermediate:

- 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 numbers of pizzas order per day.

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

Advanced:

- 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.





```
SELECT  
    COUNT(ORDER_ID) AS TOTAL_ORDERS  
FROM  
    ORDERS;
```

| Result Grid | |
|-------------|--------------|
| | TOTAL_ORDERS |
| ▶ | 21350 |

- CALCULATED THE TOTAL REVENUE GENERATED FROM PIZZA SALES.

```
SELECT  
    ROUND(SUM(ORDER_DETAILS.QUANTITY * PIZZAS.PRICE),  
         2) AS TOTAL_REVENUE  
FROM  
    ORDER_DETAILS  
    JOIN  
    PIZZAS ON PIZZAS.PIZZA_ID = ORDER_DETAILS.PIZZA_ID;
```

| Result Grid | |
|-------------|---------------|
| | TOTAL_REVENUE |
| ▶ | 817860.05 |

- IDENTIFY THE HIGHEST PRICE PIZZA.

```
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;
```

Result Grid | Filter Rows

| | NAME | PRICE |
|---|-----------------|-------|
| ▶ | The Greek Pizza | 35.95 |

- IDENTIFY THE MOST COMMON PIZZA SIZE ORDERED.

```
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;
```

| Result Grid | | |
|-------------|------|-------------|
| | SIZE | ORDER_COUNT |
| ▶ | L | 18526 |
| | M | 15385 |
| | S | 14137 |
| | XL | 544 |
| | XXL | 28 |

- LIST THE TOP FIVE MOST ORDERED PIZZA TYPES ALONG WITH THEIR QUANTITY.

```
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;
```

Result Grid | Filter Rows:

| | 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 |

- JOIN THE NECESSARY TABLES TO FIND THE TOTAL QUANTITY OF EACH PIZZA CATEGORY ORDERED.

```
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;
```

| Result Grid | | Filter R |
|-------------|----------|----------|
| | CATEGORY | QUANTITY |
| ▶ | Classic | 14888 |
| | Supreme | 11987 |
| | Veggie | 11649 |
| | Chicken | 11050 |

- DETERMINE THE DISTRIBUTION OF ORDERS BY HOUR OF THE DAY.

```
SELECT  
    HOUR(ORDER_TIME) AS HOUR, COUNT(ORDER_ID) AS ORDER_COUNT  
FROM  
    ORDERS  
GROUP BY HOUR;
```

| Result Grid | | Filter F |
|-------------|------|-------------|
| | HOUR | 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 |
| | 23 | 28 |
| | 10 | 8 |
| | 9 | 1 |

- GROUP THE ORDERS BY DATE AND CALCULATE THE NUMBER OF PIZZAS ORDER PER DAY.

```
SELECT  
    ROUND(AVG(QUANTITY), 0) AS AVG_PIZZA_ORDERED_PER_DAY  
FROM  
(SELECT  
    ORDERS.ORDER_DATE AS DATE,  
    SUM(ORDER_DETAILS.QUANTITY) AS QUANTITY  
FROM  
    ORDERS  
JOIN ORDER_DETAILS ON ORDERS.ORDER_ID = ORDER_DETAILS.ORDER_ID  
GROUP BY DATE) AS ORDER_QUANTITY;
```

| Result Grid | |
|-------------|----------------------------------|
| | Filter Rows: |
| ▶ | AVG_PIZZA_ORDERED_PER_DAY 138 |

- DETERMINE THE TOP 3 MOST ORDERED PIZZA TYPES BASED ON REVENUE.

```
SELECT  
    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.NAME  
ORDER BY REVENUE DESC  
LIMIT 3;
```

| Result Grid | | Filter Rows: |
|-------------|------------------------------|--------------|
| | 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 TYPE TO TOTAL REVENUE.

```
SELECT  
    PIZZA_TYPES.CATEGORY,  
    ROUND(SUM(ORDER_DETAILS.QUANTITY * PIZZAS.PRICE) / (SELECT  
        ROUND(SUM(ORDER_DETAILS.QUANTITY * PIZZAS.PRICE),  
        2) AS TOTAL_REVENUE  
    )  
    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;
```

| Result Grid | | |
|-------------|----------|---------|
| | CATEGORY | REVENUE |
| ▶ | Classic | 26.91 |
| | Supreme | 25.46 |
| | Chicken | 23.96 |
| | Veggie | 23.68 |

- ANALYZE THE CUMULATIVE REVENUE GENERATED OVER TIME.

```

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;
  
```

Result Grid | Filter Rows:

| ORDER_DATE | CUM_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 | 23990.35000000002 |
| 2015-01-11 | 25862.65 |
| 2015-01-12 | 27781.7 |
| 2015-01-13 | 29831.30000000003 |
| 2015-01-14 | 32358.70000000004 |
| 2015-01-15 | 34343.5000000001 |
| 2015-01-16 | 36937.6500000001 |
| 2015-01-17 | 39001.7500000001 |
| 2015-01-18 | 40978.60000000006 |
| 2015-01-19 | 43365.7500000001 |
| 2015-01-20 | 45763.6500000001 |
| 2015-01-21 | 47804.2000000001 |
| 2015-01-22 | 50300.9000000001 |
| 2015-01-23 | 52724.60000000006 |
| 2015-01-24 | 55013.85000000006 |
| 2015-01-25 | 56631.4000000001 |
| 2015-01-26 | 58515.8000000001 |

- DETERMINE THE TOP 3 MOST ORDERED PIZZA TYPES BASED ON REVENUE FOR EACH PIZZA CATEGORY.

```

SELECT CATEGORY, 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;
    
```

| | 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 | 32265.70000000065 |
| | Veggie | The Mexicana Pizza | 26780.75 |
| | Veggie | The Five Cheese Pizza | 26066.5 |

KEY INSIGHTS :

- The total number of orders placed so far 21350
- The total revenue generated from pizza sales : 817860.05
- Highest priced pizza is “Greek pizza”
- The most common pizza size ordered is “L”
- The classic deluxe pizza, barbecue chicken pizza, the Hawaiian pizza are top 3 most ordered pizza
- The most ordered pizza category by quantity is Classic followed by Supreme
- Busiest hours for sales : 12:00 TO 8:00 PM
- The average number of pizzas ordered per day : 138
- The top 3 most ordered pizza types based on revenue are the Thai chicken pizza, the Barbecue chicken pizza and the California chicken pizza
- The percentage contribution of each pizza type to total revenue is classic(27%),supreme(25%) ,chicken(24%) and veggie(23%)



SUGGESTIONS TO BOOST SALES :

Focus on Popular

Pizzas: Consider promoting these through special deals or combo offers to boost sales further

Increase Classic and Supreme Offerings: Introduce new flavors or variations within these categories to attract more customers and boost sales in these already popular segments.

Enhance Chicken Pizza Promotion : Consider bundling these with popular sides or beverages to create attractive meal deals that can increase overall ticket size.

Introduce a Premium Greek Pizza Experience: Create a premium dining experience or limited-time offer around it to attract customers willing to spend more for a premium product.

Target Peak Hours with Promotions: The busiest hours for sales are between 12:00 PM and 8:00 PM. Introduce time-limited offers or discounts during these hours to maximize sales.

Optimize Marketing Strategies Based on Insights : Focusing on the highest revenue contributors like Thai Chicken, Barbecue Chicken, and California Chicken pizzas.

Expand Size Options for Popular Sizes: Introduce new variants or special deals for the popular size to cater to customer preferences and encourage repeat purchases

Loyalty Programs and Discounts: Implement loyalty programs or offer discounts for frequent buyers.

OVERALL IMPACT :

Total Revenue Growth: Implementing all strategies effectively could result in an estimated 20-30% increase in revenue.

Total Sales Increment: This could translate to approximately 10,000-12,000 additional orders annually.