Pizza Sales Analysis using SQL

Introduction

"Hello everyone! I'm Arvind Goudar, an aspiring Data Analyst.
In this project, I conducted a comprehensive Pizza Sales Analysis using SQL to address key business challenges. The goal was to extract meaningful insights from the data that can guide informed business decisions and contribute to growth in the pizza industry.

Objective

- To perform an in-depth analysis of pizza sales data using SQL queries to uncover key insights, trends, and performance metrics. The goal is to deliver data-driven recommendations that can help increase sales, optimize operations, and support strategic 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
3. improvement. Develop data-driven insights to support business decisions and drive growth in the pizza industry.

Questions This Analysis Answers

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.

Inter mediate :

- 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.

- RETERIVE THE TOTAL NUMBER OF ORDERS PLACED.

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

Result Grid

	TOTAL_ORDERS
▶	21350

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- 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

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- 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 Rc

	NAME	PRICE
▶	The Greek Pizza	35.95

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- 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

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- 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

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- 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

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

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

Result Grid | Filter R

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

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

```sql
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

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- 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

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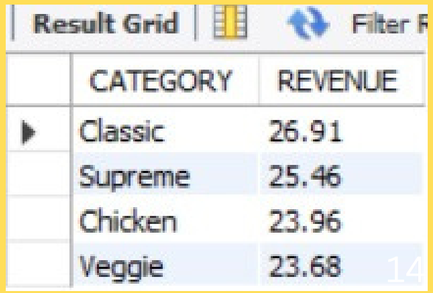
- CALCULATE THE PERCENTAGE CONTRIBUTION OF EACH PIZZA TYPE TO TOTAL REVENUE.

```sql
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 | Filter R

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	2713.850000000004
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
2015-01-20	45763.65000000001
2015-01-21	47804.20000000001
2015-01-22	50300.90000000001
2015-01-23	52724.600000000006
2015-01-24	55013.850000000006
2015-01-25	56631.40000000001
2015-01-26	58515.80000000001

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

```sql
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;
```

Result Grid | Filter Rows: | Export:

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

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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%)

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Suggestion To Boost The 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.

THANK YOU