PIZZA SALES ANALYSIS

An Insight into Customer Behavior, Popular Pizza Types, and Sales trends.

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Introduction

The objective is to analyze pizza sales data and gain insights into customer behavior, popular pizza types, sales trends, and overall performance. The dataset consists of four tables: order_details, orders, pizza, and pizza_type.

Database Schema :

order_details

• order_details_id: Unique identifier for the order detail.

• order_id: Identifier linking to the orders table.

• pizza_id: Identifier linking to the pizza table.

• quantity: Number of pizzas ordered.

orders

• order_id: Unique identifier for the order.

• date: Date the order was placed.

• time: Time the order was placed.

pizza_type

• pizza_type_id: Unique identifier for the pizza type.
• name: Name of the pizza.
• category: Category of the pizza (e.g., vegetarian, meat, etc.).

• ingredients: List of ingredients used in the pizza.

pizza

• pizza_id: Unique identifier for the pizza.

• pizza_type_id: Identifier linking to the pizza_type table.

• size: Size of the pizza (e.g., small, medium, large).
• price: Price of the pizza.

Questions

- [ ] Q1: The total number of order place
- [ ] Q2: The total revenue generated from pizza sales
- [ ] Q3: The highest priced pizza.
- [ ] Q4: The most common pizza size ordered.
- [ ] Q5: The top 5 most ordered pizza types along their quantities.
- [ ] Q6: The quantity of each pizza categories ordered.
- [ ] Q7: The distribution of orders by hours of the day.
- [ ] Q8: The category-wise distribution of pizzas.
- [ ] Q9: The average number of pizzas ordered per day.
- [ ] Q10: Top 3 most ordered pizza type base on revenue.
- [ ] Q11: The percentage contribution of each pizza type to revenue.
- [ ] Q12: The cumulative revenue generated over time.
- [ ] Q13: The top 3 most ordered pizza type based on revenue for each pizza category.

SQL Queries used for analyzing the questions mentioned

```sql
-- Q1: The total number of orders placed
SELECT COUNT(order_id)
AS "Total orders"
FROM orders;

-- Q2: The total revenue generated from pizza sales
SELECT SUM(o.quantity * p.price) AS "Total Revenue"
FROM order_details o
JOIN pizza p
ON o.pizza_id = p.pizza_id;

-- Q3: The highest priced pizza
SELECT price AS "highest price"
FROM pizza
ORDER BY price DESC
LIMIT 1;

-- Q4: The most common pizza size ordered
SELECT p.size, COUNT(*) AS count
FROM order_details o
JOIN pizza p
ON o.pizza_id = p.pizza_id
GROUP BY p.size
ORDER BY count DESC
LIMIT 1;

-- Q5: The top 5 most ordered pizza types along their quantities
SELECT p.pizza_type_id, COUNT(o.quantity) AS quantity
FROM order_details o
JOIN pizza p
ON o.pizza_id = p.pizza_id
GROUP BY p.pizza_type_id
ORDER BY quantity DESC
LIMIT 5;
```

```sql
-- Q6: The quantity of each pizza category ordered
SELECT pt.category, SUM(od.quantity) AS total_quantity
FROM order_details od
JOIN pizza p ON od.pizza_id = p.pizza_id
JOIN pizza_type pt ON p.pizza_type_id = pt.pizza_type_id
GROUP BY pt.category;

-- Q7: The distribution of orders by hours of the day
SELECT EXTRACT(HOUR FROM time) AS hour, COUNT(order_id) AS order_count
FROM orders
GROUP BY hour
ORDER BY hour;
-- Q8: The category-wise distribution of pizzas
SELECT pt.category, COUNT(p.pizza_id) AS pizza_count
FROM pizza p
JOIN pizza_type pt ON p.pizza_type_id = pt.pizza_type_id
GROUP BY pt.category;

-- Q9: The average number of pizzas ordered per day
SELECT AVG(daily_order_count) AS avg_pizzas_per_day
FROM (
    SELECT COUNT(od.quantity) AS daily_order_count
    FROM order_details od
    JOIN orders o ON od.order_id = o.order_id
    GROUP BY o.date
) daily_orders;

-- Q10: Top 3 most ordered pizza types based on revenue
SELECT pt.name, SUM(od.quantity * p.price) AS total_revenue
FROM order_details od
JOIN pizza p ON od.pizza_id = p.pizza_id
JOIN pizza_type pt ON p.pizza_type_id = pt.pizza_type_id
GROUP BY pt.name
ORDER BY total_revenue DESC
LIMIT 3;
```

```sql
-- Q11: The percentage contribution of each pizza type to revenue
WITH revenue_per_type AS (
    SELECT pt.name, SUM(od.quantity * p.price) AS total_revenue
    FROM order_details od
    JOIN pizza p ON od.pizza_id = p.pizza_id
    JOIN pizza_type pt ON p.pizza_type_id = pt.pizza_type_id
    GROUP BY pt.name
)
SELECT name, total_revenue,
       (total_revenue / (SELECT SUM(total_revenue) FROM revenue_per_type) * 100) AS percentage_contribution
FROM revenue_per_type;

-- Q12: The cumulative revenue generated over time
SELECT o.date, SUM(od.quantity * p.price) OVER (ORDER BY o.date) AS cumulative_revenue
FROM order_details od
JOIN orders o ON od.order_id = o.order_id
JOIN pizza p ON od.pizza_id = p.pizza_id
ORDER BY o.date;

-- Q13: The top 3 most ordered pizza types based on revenue for each pizza category
SELECT category, name, total_revenue
FROM (
    SELECT
        pt.category,
        pt.name,
        SUM(od.quantity * p.price) AS total_revenue,
        ROW_NUMBER() OVER (PARTITION BY pt.category ORDER BY SUM(od.quantity * p.price) DESC) AS `rank`
    FROM order_details od
    JOIN pizza p ON od.pizza_id = p.pizza_id
    JOIN pizza_type pt ON p.pizza_type_id = pt.pizza_type_id
    GROUP BY pt.category, pt.name
) AS ranked
WHERE `rank` <= 3
ORDER BY category, total_revenue DESC;
```

Overall Sales Performance

The analysis reveals the total number of orders placed, the total revenue generated from pizza sales, and the average number of pizzas ordered per day.

1

Total Orders

The total number of orders placed is 21350$.

2

Total Revenue

The total revenue generated from pizza sales is 817860.05$.

3

Average Pizzas per Day

The average number of pizzas ordered per day is 131.82$.

Pizza Popularity

The analysis examines the most common pizza size ordered, the top 5 most ordered pizza types, and the quantity of each pizza category ordered.

Most Common Size

The most common pizza size ordered is :

'L' which was ordered

18526 times.

Top 5 Pizza Types

The top 5 most ordered pizza types are:

1. classic_dlx ordered 2416 times.
2. bbq_ckn ordered 2372 times
3. hawaiian ordered 2370 times
4. peperoni ordered 2369 times
5. thai_ckn ordered 2315 times

Pizza Category Quantities

The quantity of each pizza category ordered is :

1. classic ordered 14888 times.
2. Veggie ordered 11649 times.
3. Supreme ordered 11987 times.
4. Chicken ordered 11050 times

Revenue Analysis

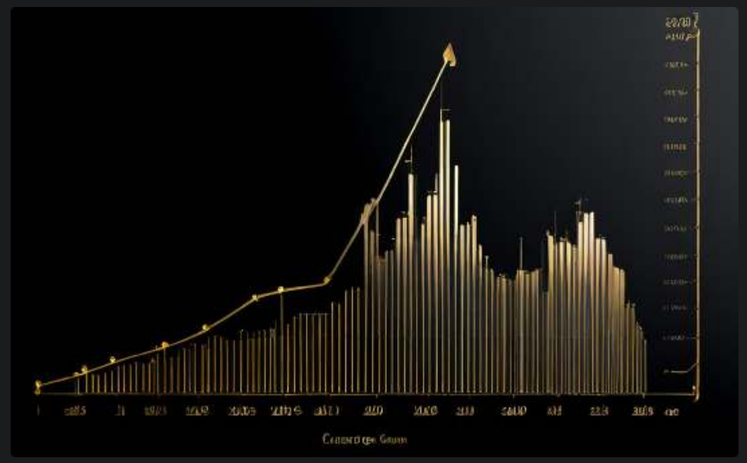
The analysis focuses on the top 3 most ordered pizza types based on revenue, the percentage contribution of each pizza type to revenue, and the cumulative revenue generated over time.

Top 3 Pizza Types by Revenue

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

Percentage Contribution to Revenue

1. classic has a percentage of 26.91 %
2. Supreme has a percentage of 25.46 %
3. Chicken has a percentage of 23.96 %
4. Veggie has a percentage of 23.68 %



Cumulative Revenue Over Time

Revenue on 2015-01-01 is $ 2713.85

while the Revenue on 2015-12-31 is

$ 817,860.05 in a year

Pricing and Menu Analysis

The analysis examines the highest priced pizza and the category-wise distribution of pizzas on the menu.

Highest Priced Pizza

The highest priced pizza costs:

$ 35.95 and is named the_greek_xxl

Pizza Category Distribution

The category-wise distribution of pizzas on the menu is

- Chicken category has 18 pizzas
- Classic category has 26 pizzas
- Supreme category has 25
- pizzas Veggie category has 27 pizzas

Order Patterns

The analysis looks at the distribution of orders by hours of the day.

Order Distribution by Hour

9 hrs: 1	10 hrs: 8	11 hrs: 1231	12 hrs: 2520
13 hrs: 2455	14 hrs: 1472	15 hrs: 1468	16 hrs: 1920
17 hrs: 2336	18 hrs: 2399	19 hrs: 2009	20 hrs: 1642
21 hrs: 1198	22 hrs: 663	23 hrs: 28	

Category Performance

Category	Names of top 3 pizzas	Total Revenue
chicken	The Thai Chicken Pizza	43434.25 $
Chicken	The Barbecue Chicken Pizza	42768.00 $
chicken	The California Chicken Pizza	41409.50 $
classic	The Classic Deluxe Pizza	38,180.50 $
classic	The Hawaiian Pizza	32,273.25 $
classic	The Pepperoni Pizza	30,161.75 $
Supreme	The Spicy Italian Pizza	34,831.25$
Supreme	The Italian Supreme Pizza	33,476.75$
Supreme	The Sicilian Pizza	30,940.50$
Veggie	The Four Cheese Pizza	32,265.70$
Veggie	The Mexicana Pizza	26,780.75$
Veggie	The Five Cheese Pizza	26,066.50$

Conclusion

The analysis provides a summary of key findings, insights into customer preferences and sales trends, and potential recommendations for business improvement and leveraged advanced SQL techniques to extract valuable insights from complex sales data. The results highlight opportunities for increased profitability and customer satisfaction.

This conclusion emphasizes:

- The technical approach (SQL and database analysis)
- The range of insights uncovered
- The practical applications of the findings