Pizza sales analysis

Using SQL for Data Analysis

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PIZZA

PROJECT OVERVIEW:

This project analyzes pizza sales data to understand sales trends and popular products using SQL.

OBJECTIVE:

Identify sales patterns and top-selling pizzas to optimize sales strategies.

DATA SOURCE:

Pizza sales dataset including order details and customer information.

TOOLS USED:

SQL for data analysis and insights extraction

DATABASE STRUCTURE OF PIZZA_SALES

Tables:

orders :

Contains: order_id, date, time

order_details :

Contains: order_details_id, order_id, pizza_id , quantity

pizzas :

Contains: pizza_id, pizza_type_id, size, price

pizza_types :

Contains: pizza_type_id, name, category, ingredients

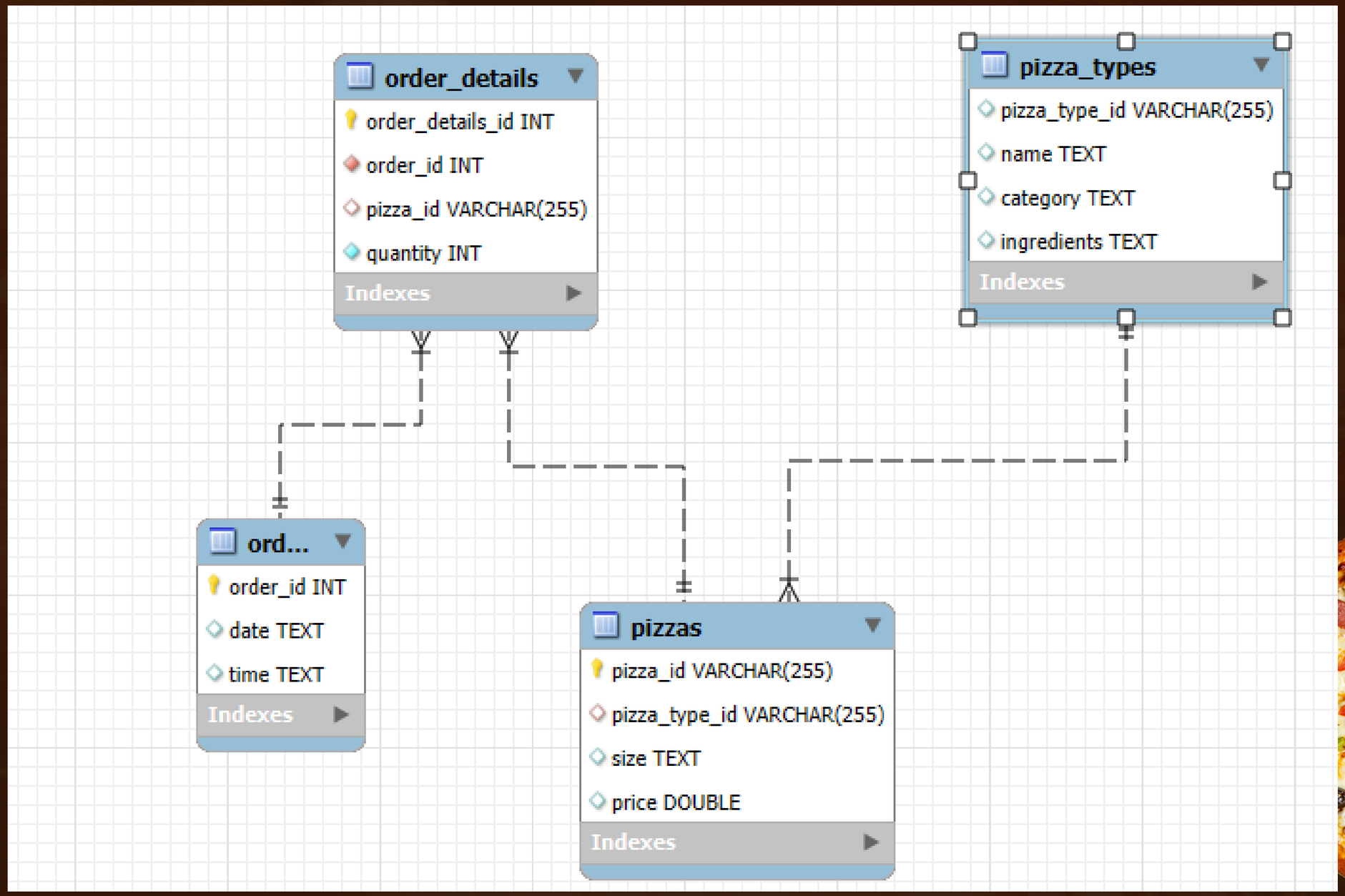
RELATIONSHIPS:

1.Orders to Order Details: One-to-many relationship.

2.Order Details to Pizzas: Many-to-one relationship.

3.Pizzas to Pizza Types: Many-to-one relationship.

ER - DIAGRAM


order_details
order_details_id INT
order_id INT
pizza_id VARCHAR(255)
quantity INT
Indexes
pizza_types
pizza_type_id VARCHAR(255)
name TEXT
category TEXT
ingredients TEXT
Indexes
ord...
order_id INT
date TEXT
time TEXT
Indexes
pizzas
pizza_id VARCHAR(255)
pizza_type_id VARCHAR(255)
size TEXT
price DOUBLE
Indexes

KEY ANALYSIS QUERIES

Basic:

1.Retrieve the total number of orders placed.
2.Calculate the total revenue generated from pizza sales.
3.dentify the highest-priced pizza.
4.Identify the most common pizza size ordered.
5.List the top 5 most ordered pizza types along with theirquantities.

Intermediate:

1.Join the necessary tables to find the total quantity of each pizza category ordered.
2.Determine the distribution of orders by hour of the day.
3.Join relevant tables to find the category-wise distribution of pizzas.
4.Group the orders by date and calculate the average number of pizzas ordered per day.
5.Determine the top 3 most ordered pizza types based on revenue.

Advanced:

1.Calculate the percentage contribution of each pizza type to total revenue.
2.Analyze the cumulative revenue generated for the first 10 time period.
3.Determine the top 3 most ordered pizza types based on revenue for each pizza category.

Basic

QUERY 1:

Retrieve the total number of orders placed.

INPUT:

```
SELECT
    COUNT(order_id) AS total_orders
FROM
    orders;
```

OUTPUT:

	total_orders
▶	21350

QUERY 2:

Calculate the total revenue generated from pizza sales.

INPUT:

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

OUTPUT:

	total_revenue
▶	817860.05

QUERY 3:

Identify the highest-priced pizza.

INPUT:

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

OUTPUT:

	name	price
▶	The Greek Pizza	35.95

QUERY 4:

Identify the most common pizza size ordered.

INPUT:

```
SELECT
    p.size, COUNT(o.order_details_id) AS order_count
FROM
    pizzas AS p
        JOIN
    order_details AS o ON p.pizza_id = o.pizza_id
GROUP BY p.size
ORDER BY order_count DESC;
```

OUTPUT:

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

QUERY 5:

List the top 5 most ordered pizza types along with their quantities.

INPUT:

```sql
SELECT
    t.name, SUM(o.quantity) AS quantity
FROM
    pizza_types AS t
        JOIN
    pizzas as p ON t.pizza_type_id = p.pizza_type_id
        JOIN
    order_details AS o ON o.pizza_id = p.pizza_id
GROUP BY t.name
ORDER BY quantity DESC
LIMIT 5;
```

OUTPUT:

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

Intermediate:

QUERY 1:

Join the necessary tables to find the total quantity of each pizza category ordered.

INPUT:

```
SELECT
    t.category , SUM(o.quantity) AS quantity
FROM
    pizza_types AS t
        JOIN
    pizzas as p ON t.pizza_type_id = p.pizza_type_id
        JOIN
    order_details AS o ON o.pizza_id = p.pizza_id
GROUP BY t.category
ORDER BY quantity DESC;
```

OUTPUT:

category	quantity
Classic	14888
Supreme	11987
Veggie	11649
Chicken	11050

QUERY 2:

Determine the distribution of orders by hour of the day.

INPUT:

```
SELECT
    HOUR(time) AS hour, COUNT(order_id) AS order_count
FROM
    orders
GROUP BY hour;
```

OUTPUT:

hour	order_count
9	1
10	8
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

QUERY 3:

Join relevant tables to find the category-wise distribution of pizzas.

INPUT:

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

OUTPUT:

category	pizza_count
Chicken	6
Classic	8
Supreme	9
Veggie	9

QUERY 4:

Group the orders by date and calculate the average number of pizzas ordered per day.

INPUT:

```
SELECT
    ROUND(AVG(quantity), 0) AS avg_no_of_pizza_order
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 orders.date) AS order_quantity;
```

OUTPUT:

avg_no_of_pizza_order
138

QUERY 5:

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

INPUT:

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

OUTPUT:

name	Revenue
The Thai Chicken Pizza	43434.25
The Barbecue Chicken Pizza	42768
The California Chicken Pizza	41409.5

Advanced:

QUERY 1:

Calculate the percentage contribution of each pizza type to total revenue.

INPUT:

```
WITH total_revenue AS (
SELECT
    name,
    ROUND(SUM(price * quantity), 2) AS revenue
FROM
    pizza_types
        JOIN
    pizzas USING (pizza_type_id)
        JOIN
    order_details USING (pizza_id)
GROUP BY name
)
SELECT
    name,
    CONCAT(
            ROUND(100 * revenue / sum(revenue) over() ,2) ,
            '%'
              )    AS pct_contribution
FROM
    total_revenue;
```

OUTPUT:

name	Total_Revenue
The Barbecue Chicken Pizza	5.23%
The California Chicken Pizza	5.06%
The Chicken Alfredo Pizza	2.07%
The Chicken Pesto Pizza	2.04%
The Southwest Chicken Pizza	4.24%
The Thai Chicken Pizza	5.31%
The Big Meat Pizza	2.81%
The Classic Deluxe Pizza	4.67%
The Hawaiian Pizza	3.95%
The Italian Capocollo Pizza	3.07%
The Napolitana Pizza	2.95%
The Pepperoni, Mushroom, ...	2.3%
The Pepperoni Pizza	3.69%
The Greek Pizza	3.48%
The Brie Carre Pizza	1.42%
The Calabrese Pizza	1.95%
The Italian Supreme Pizza	4.09%
The Pepper Salami Pizza	3.12%
The Prosciutto and Arugula ...	2.96%
The Sicilian Pizza	3.78%
The Soppressata Pizza	2.01%

QUERY 2:

Analyze the cumulative revenue generated for the first 10 records

INPUT:

```
select
      date , round(sum(Revenue) over(order by date),2)
               as Cum_Revenue
 from
        (select orders.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.date)  as sales limit 10 ;
```

OUTPUT:

date	Cum_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

QUERY 3:

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

INPUT:

```
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 ;
```

OUTPUT:

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
The Four Cheese Pizza	32265.700000000554
The Mexicana Pizza	26780.75
The Five Cheese Pizza	26066.5

KEY INSIGHTS AND CONCLUSION

This pizza sales analysis reveals that the highest revenue is generated by Thai Chicken Pizza, Barbecue Chicken Pizza, and California Chicken Pizza.

The most frequently ordered pizza sizes are Large and Medium.

Focusing on these top-selling pizza types and popular sizes, especially during peak hours, can help optimize sales and improve revenue generation

THANK YOU FOR ATTENTION

THANK YOU FOR REVIEWING MY PROJECT. IF YOU HAVE ANY FEEDBACK OR QUESTIONS, FEEL FREE TO REACH OUT.

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