Pizza Sales Analysis Using SQL

Aditya Kumar Das

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Introduction

Pizza Sales Data Analysis Project

Objective:
This project dives into the pizza sales data, focusing on uncovering insights related to product popularity, sales trends, and customer preferences. By leveraging SQL queries, the analysis aims to assist in data-driven decision-making for optimizing inventory management, enhancing marketing strategies, and understanding customer behavior.
Project Components:

1. Sales Performance Analysis
   - Analyzed total sales per pizza type, size, and topping combinations to determine high-demand items.
   - Explored sales trends across months and days of the week to identify peak periods.
   - Calculated revenue contributions by pizza category and identified top revenue-generating items.
2. Customer Purchase Patterns
   - Examined repeat customer purchases and frequency to understand loyalty and potential for targeted offers.
   - Analyzed average order sizes and values to uncover upselling opportunities and pricing optimization.
3. Time-Based Trends
   - Evaluated hourly and daily ordering trends to identify optimal staffing hours and prepare for busy periods.
   - Investigated seasonal patterns in pizza sales to guide inventory management and promotional efforts.

```sql
-- Q1. Retrieve the total number of orders placed.

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

TOTAL_ORDERS
21350

```sql
-- Q2. Calculate the total revenue generated from pizza sales.
SELECT ROUND(SUM(P.PRICE*OD.QUANTITY),0) TOTAL_REVENUE
FROM ORDER_DETAILS OD JOIN PIZZAS P
ON OD.PIZZA_ID=P.PIZZA_ID;
```

	TOTAL_REVENUE
▶	1635720

```sql
-- Q3. Identify the highest-priced pizza.
SELECT PT.NAME, P.PRICE
FROM PIZZAS P JOIN pizza_types PT
ON P.pizza_type_id=PT.pizza_type_id
ORDER BY PRICE DESC LIMIT 1;
```

	NAME	PRICE
▶	The Greek Pizza	35.95

```sql
-- Q4. Identify the most common pizza size ordered.

select p.size, sum(od.quantity)total_quantity
from pizzas p join order_details od
on p.pizza_id=od.pizza_id
group by p.size
order by total_quantity desc;
```

size	total_quantity
L	37912
M	31270
S	28806
XL	1104
XXL	56

```sql
-- Q5. List the top 5 most ordered pizza types along with their quantities.
select pt.name, sum(od.quantity)total_quantity
from pizzas p join pizza_types pt
on p.pizza_type_id=pt.pizza_type_id
join order_details od
on  p.pizza_id=od.pizza_id
group by pt.name
order by total_quantity desc
limit 5;
```

name	total_quantity
The Classic Deluxe Pizza	4906
The Barbecue Chicken Pizza	4864
The Hawaiian Pizza	4844
The Pepperoni Pizza	4836
The Thai Chicken Pizza	4742

```sql
-- Q6. Join the necessary tables to find the total quantity of each pizza category ordered.
select pt.category, sum(od.quantity)total_quantity
from pizzas p join pizza_types pt
on p.pizza_type_id=pt.pizza_type_id
join order_details od
on  p.pizza_id=od.pizza_id
group by pt.category
order by total_quantity desc;
```

category	total_quantity
Classic	29776
Supreme	23974
Veggie	23298
Chicken	22100

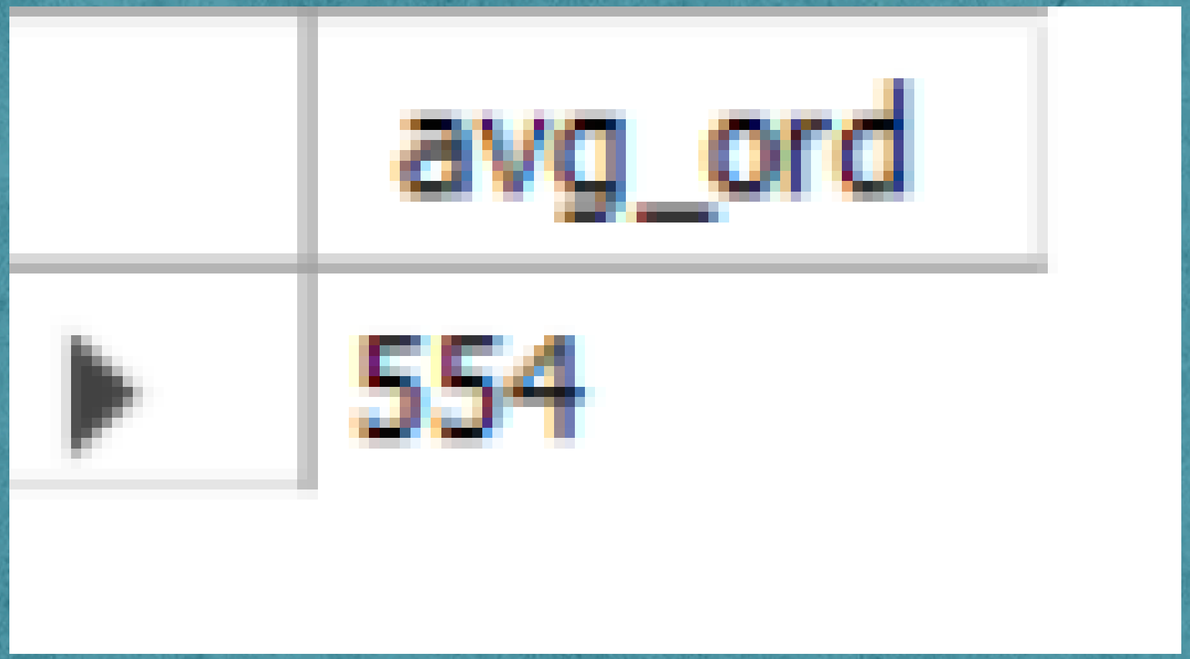
```sql
-- Q7. Determine the distribution of orders by hour of the day.
select hour(time)hours, count(order_id) cnt
from orders o
group by hours
order by cnt desc;
```

	hours	cnt
▶	12	5040
	13	4910
	18	4798
	17	4672
	19	4018
	16	3840
	20	3284
	14	2944
	15	2936
	11	2462
	21	2396
	22	1326
	23	56
	10	16
	9	2

```sql
-- Q8. Join relevant tables to find the category-wise distribution of pizzas.
select category, count(name)cnt
from pizza_types
group by category;
```

category	cnt
Chicken	6
Classic	8
Supreme	9
Veggie	9

```sql
-- Q9. Group the orders by date and calculate the average number of pizzas ordered per day.
select round(avg(total) ,0) avg_ord
from
(select o.date, sum(od.quantity)total
from orders o join order_details od
on o.order_id=od.order_id
group by o.date
order by total desc) a;
```



	avg_ord
▶	554

```sql
-- Q10. Determine the top 3 most ordered pizza types based on revenue.
select pt.name, round(sum(od.quantity*p.price), 0) revenue
from order_details od join pizzas p
on od.pizza_id=p.pizza_id
join pizza_types pt
on p.pizza_type_id=pt.pizza_type_id
group by pt.name
order by revenue desc
limit 3;
```

name	revenue
The Thai Chicken Pizza	86868
The Barbecue Chicken Pizza	85536
The California Chicken Pizza	82819

```sql
-- Q11. Calculate the percentage contribution of each pizza type to total revenue.
with cte1 as
(select round(sum(od.quantity*p.price),0) total_revenue
from order_details od join pizzas p
on od.pizza_id=p.pizza_id),

cte2 as
(select pt.category, sum(od.quantity*p.price) revenue
from order_details od join pizzas p
on od.pizza_id=p.pizza_id
join pizza_types pt
on p.pizza_type_id=pt.pizza_type_id
group by pt.category
order by revenue desc)

select cte2.category, round((cte2.revenue/cte1.total_revenue )*100, 1) percentage
from cte1 join cte2
order by percentage desc;
```

category	percentage
Classic	26.9
Supreme	25.5
Chicken	24
Veggie	23.7

```sql
-- Q12. Analyze the cumulative revenue generated over time.
select date, sum(revenue) over(order by date) as cum_revenue
from
(select o.date, round(sum(od.quantity*p.price),0) revenue
from order_details od join pizzas p
on od.pizza_id=p.pizza_id
join orders o
on o.order_id=od.order_id
group by o.date) as x;
```

date	cum_revenue
2015-01-01	10855
2015-01-02	21783
2015-01-03	32433
2015-01-04	39455
2015-01-05	47719
2015-01-06	57435
2015-01-07	66244
2015-01-08	77597
2015-01-09	86106
2015-01-10	95962
2015-01-11	103451
2015-01-12	111127
2015-01-13	119325
2015-01-14	129435

```sql
-- Q13. Determine the top 3 most ordered pizza types based on revenue for each pizza category.
select * from
(select pt.category, pt.name, round(sum(od.quantity*p.price),0) revenue,
dense_rank() over(partition by pt.category order by sum(od.quantity*p.price) desc) as rk
from order_details od join pizzas p
on od.pizza_id=p.pizza_id
join pizza_types pt
on p.pizza_type_id=pt.pizza_type_id
group by pt.category, pt.name
order by revenue desc) as x
where rk<=3
order by category;
```

category	name	revenue	rk
Chicken	The Thai Chicken Pizza	86868	1
Chicken	The Barbecue Chicken Pizza	85536	2
Chicken	The California Chicken Pizza	82819	3
Classic	The Classic Deluxe Pizza	76361	1
Classic	The Hawaiian Pizza	64546	2
Classic	The Pepperoni Pizza	60324	3
Supreme	The Spicy Italian Pizza	69662	1
Supreme	The Italian Supreme Pizza	66954	2
Supreme	The Sicilian Pizza	61881	3
Veggie	The Four Cheese Pizza	64531	1
Veggie	The Mexicana Pizza	53562	2
Veggie	The Five Cheese Pizza	52133	3

Classic

Thank you!

Aditya Kumar Das

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