Pizza Sales Data Analysis

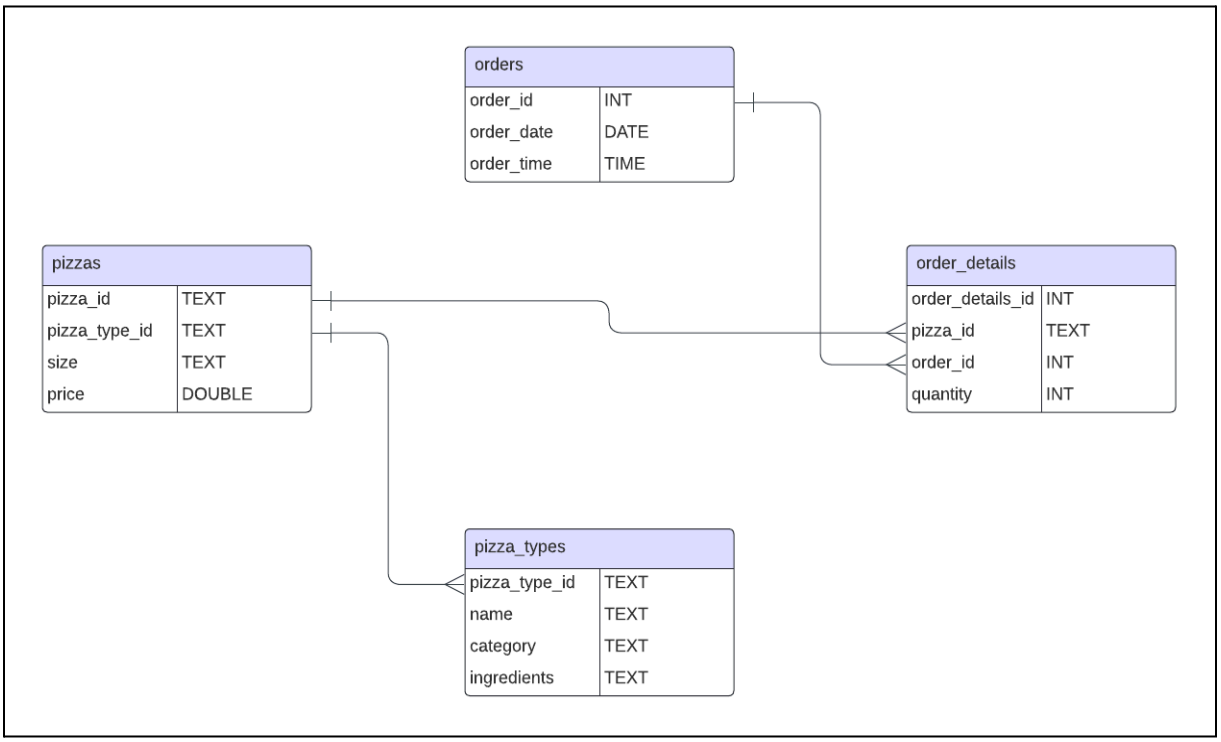
Problem Statement :

The objective of this project is to analyze pizza sales data to derive meaningful insights that can help the business understand its performance and customer preferences. The analysis involves retrieving key metrics, identifying trends, and performing advanced revenue calculations.

Data Source: The data consists of several tables that store information about orders, pizzas, pizza types, and order details. The tables are structured as follows:

- **Orders**: Information about each order placed, including order ID, date, and time.
- **Order Details**: Information about the items in each order, including pizza type and quantity.
- **Pizzas**: Information about each pizza, including type, category, and price.
- **Pizza Types**: Information about the sizes available for each pizza.

Entity Relationship Diagram :



Case Study Questions and Solutions :

1. **Retrieve the total number of orders placed.**

   Query :
   select count(*) as order_count from orders;

   Output :

   Result Grid | Filter

	order_count
▶	21350

2. **Calculate the total revenue generated from pizza sales.**

   Query :
   select round(sum(price * quantity),2) as revenue_generated
   from
   pizzas p inner join order_details o
   on p.pizza_id = o.pizza_id;

   Output :

   Result Grid | Filter Rows:

	revenue_generated
▶	817860.05

3. **Identify the highest-priced pizza.**

   Query :
   select * from pizzas
   where price in (select max(price) from pizzas);

   Output :

   Result Grid | Filter Rows: | Export:

	pizza_id	pizza_type_id	size	price
▶	the_greek_xxl	the_greek	XXL	35.95

4. **Identify the most common pizza size ordered.**

Query :

```
select p.size,count(o.order_details_id) as order_count
from pizzas p inner join order_details o
on p.pizza_id = o.pizza_id
group by p.size
order by order_count desc
limit 1;
```

Output :

Result Grid | Filter Rows:

size	order_count
L	18526

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

Query :

```
select p.pizza_type_id,pt.name, sum(o.quantity) as quantity from
pizzas p inner join order_details o
on p.pizza_id = o.pizza_id
inner join pizza_types pt on
p.pizza_type_id = pt.pizza_type_id
group by p.pizza_type_id
order by quantity desc
limit 5;
```

Output :

Result Grid | Filter Rows: | Export:

pizza_type_id	name	quantity
classic_dlx	The Classic Deluxe Pizza	2453
bbq_ckn	The Barbecue Chicken Pizza	2432
hawaiian	The Hawaiian Pizza	2422
pepperoni	The Pepperoni Pizza	2418
thai_ckn	The Thai Chicken Pizza	2371

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

Query :

```
select pt.category, sum(o.quantity) as quantity from
pizzas p inner join order_details o
on p.pizza_id = o.pizza_id
inner join pizza_types pt on
p.pizza_type_id = pt.pizza_type_id
group by pt.category
order by quantity desc;
```

Output :

Result Grid | Filter Rows:

category	quantity
Classic	14888
Supreme	11987
Veggie	11649
Chicken	11050

7. **Determine the distribution of orders by hour of the day.**

Query :

```
select hour(order_time) hour_of_the_day,count(order_id) as count from orders
group by hour(order_time)
order by count desc;
```

Output :

Result Grid | Filter Rows:

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

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

Query :

```
select pt.category,sum(o.quantity) as qunatity
from pizzas p inner join order_details o
on p.pizza_id = o.pizza_id
inner join pizza_types pt
on pt.pizza_type_id = p.pizza_type_id
group by pt.category
order by quantity desc;
```

Output :

Result Grid Filter Rows:

	category	qunatity
▶	Classic	14888
	Veggie	11649
	Supreme	11987
	Chicken	11050

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

Query :

```
select round(avg(pizza_qty),2) as avg_no_pizzas_per_day
from
(select order_date, sum(quantity) as pizza_qty
from orders o inner join order_details d
on o.order_id = d.order_id
group by order_date)  as order_quantity;
```

Output :

Result Grid Filter Rows:

	avg_no_pizzas_per_day
▶	138.47

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

Query :

```
select pt.name, round(sum(o.quantity*p.price),2) as revenue
from order_details o inner join pizzas p
on p.pizza_id = o.pizza_id
inner join pizza_types pt
on pt.pizza_type_id = p.pizza_type_id
group by p.pizza_type_id
order by revenue desc
limit 3;
```

Output :

Result Grid | Filter Rows: | Export:

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

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

Query :

```
select pt.name,
round(sum(p.price*o.quantity),2) as revenue,
round((sum(p.price*o.quantity)/total_revenue)*100,2) as percentage_contribution
from pizzas p inner join order_details o
on p.pizza_id = o.pizza_id
inner join pizza_types pt
on pt.pizza_type_id = p.pizza_type_id
cross join
(select sum(p.price*o.quantity) as total_revenue
from pizzas p inner join order_details o
on p.pizza_id = o.pizza_id) as tr
group by pt.name, pt.pizza_type_id, total_revenue;
```

Output :

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

name	revenue	percentage_contribution
The Hawaiian Pizza	32273.25	3.95
The Classic Deluxe Pizza	38180.5	4.67
The Five Cheese Pizza	26066.5	3.19
The Italian Supreme Pizza	33476.75	4.09
The Mexicana Pizza	26780.75	3.27
The Thai Chicken Pizza	43434.25	5.31
The Prosciutto and Arugula Pizza	24193.25	2.96
The Barbecue Chicken Pizza	42768	5.23
The Greek Pizza	28454.1	3.48
The Spinach Supreme Pizza	15277.75	1.87
The Green Garden Pizza	13955.75	1.71
The Italian Capocollo Pizza	25094	3.07
The Spicy Italian Pizza	34831.25	4.26
The Spinach Pesto Pizza	15596	1.91
The Vegetables + Vegetables Pizza	24374.75	2.98
The Southwest Chicken Pizza	34705.75	4.24
The California Chicken Pizza	41409.5	5.06
The Pepperoni Pizza	30161.75	3.69
The Chicken Pesto Pizza	16701.75	2.04
The Big Meat Pizza	22968	2.81

12. Analyze the cumulative revenue generated over time.

Query :

```
with revenue_per_order as (
select o.order_date as order_date,
o.order_id,
round(sum(p.price * od.quantity),2) as order_revenue
from pizzas p inner join order_details od
on p.pizza_id = od.pizza_id
inner join orders o
on o.order_id = od.order_id
group by o.order_date,o.order_id
),
cumulative_revenue as(
select order_date,
sum(order_revenue) over(order by order_date) as c_revenue
from revenue_per_order
)
select distinct(order_date), round(c_revenue,2) as cumulative_revenue from
cumulative_revenue
order by order_date;
```

Output :

Result Grid | Filter Rows:

order_date	cumulative_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
2015-01-11	25862.65
2015-01-12	27781.7
2015-01-13	29831.3
2015-01-14	32358.7
2015-01-15	34343.5
2015-01-16	36937.65
2015-01-17	39001.75
2015-01-18	40978.6
2015-01-19	43365.75
2015-01-20	45763.65

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

Query :

```
with pizza_revenue as (
select pt.pizza_type_id as pizza_type_id,
pt.name as name,
pt.category as category,
round(sum(p.price*o.quantity),2) as revenue
from order_details o inner join pizzas p
on o.pizza_id = p.pizza_id
inner join pizza_types pt
on p.pizza_type_id = pt.pizza_type_id
group by pizza_type_id,category
),
rank_no as (
select *,
row_number() over(partition by category order by revenue desc) as rn
from pizza_revenue
)
select * from rank_no
where rn <= 3;
```

Output :

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

pizza_type_id	name	category	revenue	rn
thai_ckn	The Thai Chicken Pizza	Chicken	43434.25	1
bbq_ckn	The Barbecue Chicken Pizza	Chicken	42768	2
cali_ckn	The California Chicken Pizza	Chicken	41409.5	3
classic_dlx	The Classic Deluxe Pizza	Classic	38180.5	1
hawaiian	The Hawaiian Pizza	Classic	32273.25	2
pepperoni	The Pepperoni Pizza	Classic	30161.75	3
spicy_ital	The Spicy Italian Pizza	Supreme	34831.25	1
ital_supr	The Italian Supreme Pizza	Supreme	33476.75	2
sicilian	The Sicilian Pizza	Supreme	30940.5	3
four_cheese	The Four Cheese Pizza	Veggie	32265.7	1
mexicana	The Mexicana Pizza	Veggie	26780.75	2
five_cheese	The Five Cheese Pizza	Veggie	26066.5	3