The Great Pizza Analytics Challenge

SQL MINI PROJECT - IDC 21 SQL CHALLENGE

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DPD zero

Project Overview

This project analyzes pizza sales performance to understand trends in customer preferences, top-selling categories, revenue contribution, and inventory planning. The goal is to help business leaders improve menu strategy, pricing decisions, and market expansion opportunities.

Dataset Overview

Dataset Summary

- orders
- order_details
- pizzas
- pizza_types

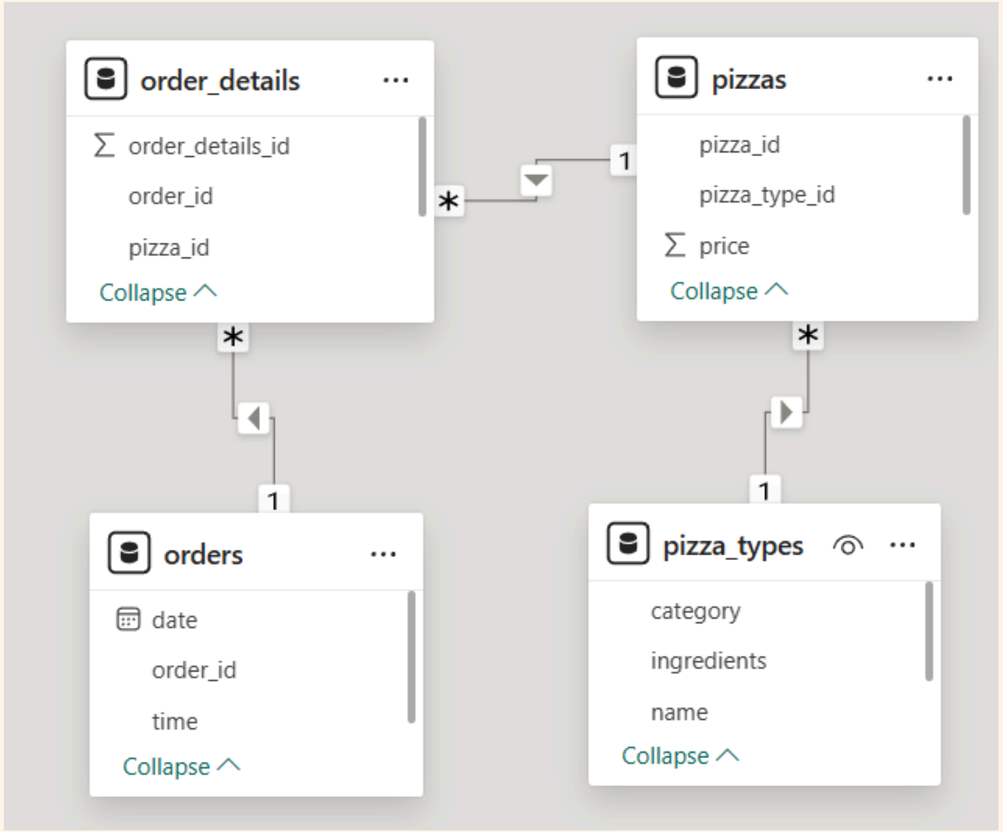
Tool Used

- SQL Workbench (MySQL)
- SQL query execution & analysis
- Database management and schema understanding

Key Skills Used

- Data Cleaning & Joins
- Group By & Aggregate Functions
- Window functions (if used)
- Subqueries & CTEs
- Ordering, Filtering, Date functions

Database Schema



Phase 1: Foundation Inspection

Que 1. List all unique pizza categories (DISTINCT).

```
select
 Distinct category
 from pizza_types;
```

Result Grid

	category
▶	Chicken
	Classic
	Supreme
	Veggie

Que 2. Display pizza_type_id, name, and ingredients, replacing NULL ingredients with "Missing Data". Show first 5 rows.

```sql
select pizza_type_id,name,
coalesce(ingredients ,'missing data')  as  ingrediants
from pizza_types limit 5;
```

pizza_type_id	name	ingrediants
bbq_ckn	The Barbecue Chicken Pizza	Barbecued Chicken, Red Peppers, Green Peppe…
big_meat	The Big Meat Pizza	Bacon, Pepperoni, Italian Sausage, Chorizo Sau…
brie_carre	The Brie Carre Pizza	Brie Carre Cheese, Prosciutto, Caramelized Oni…
calabrese	The Calabrese Pizza	'Nduja Salami, Pancetta, Tomatoes, Red Onions…
cali_ckn	The California Chicken Pizza	Chicken, Artichoke, Spinach, Garlic, Jalapeno P…

Que 3. Check for pizzas missing a price (IS NULL).

```
select * from pizzas
 where price is null;
```

pizza_id	pizza_type_id	size	price
NULL	NULL	NULL	NULL

Phase 2: Filtering & Exploration

que 4. Orders placed on '2015-01-01'(SELECT+WHERE).

```sql
select * from orders
where date = "2015-01-01";
```

order_id	date	time
1	2015-01-01	11:38:36
2	2015-01-01	11:57:40
3	2015-01-01	12:12:28
4	2015-01-01	12:16:31
5	2015-01-01	12:21:30
6	2015-01-01	12:29:36
7	2015-01-01	12:50:37
8	2015-01-01	12:51:37
9	2015-01-01	12:52:01
10	2015-01-01	13:00:15
11	2015-01-01	13:02:59
12	2015-01-01	13:04:41

que 5. List pizzas with price descending.

```
select * from pizzas
    order by price desc;
```

pizza_id	pizza_type_id	size	price
the_greek_xxl	the_greek	XXL	35.95
the_greek_xl	the_greek	XL	25.50
brie_carre_s	brie_carre	S	23.65
ital_veggie_l	ital_veggie	L	21.00
bbq_ckn_l	bbq_ckn	L	20.75
soppressata_l	soppressata	L	20.75
southw_ckn_l	southw_ckn	L	20.75
spicy_ital_l	spicy_ital	L	20.75
peppr_salami_l	peppr_salami	L	20.75
spin_pesto_l	spin_pesto	L	20.75
thai_ckn_l	thai_ckn	L	20.75
ckn_pesto_l	ckn_pesto	L	20.75
spinach_supr_l	spinach_supr	L	20.75
cali_ckn_l	cali_ckn	L	20.75
prsc_argla_l	prsc_argla	L	20.75

Que 6 .Pizzas sold in sizes 'L' or 'XL'

```
select * from pizzas
  where size in ('L','XL');
```

pizza_id	pizza_type_id	size	price
bbq_ckn_l	bbq_ckn	L	20.75
big_meat_l	big_meat	L	20.50
calabrese_l	calabrese	L	20.25
cali_ckn_l	cali_ckn	L	20.75
ckn_alfredo_l	ckn_alfredo	L	20.75
ckn_pesto_l	ckn_pesto	L	20.75
classic_dlx_l	classic_dlx	L	20.50
five_cheese_l	five_cheese	L	18.50
four_cheese_l	four_cheese	L	17.95
green_garden_l	green_garden	L	20.25
hawaiian_l	hawaiian	L	16.50
ital_cpclo_l	ital_cpclo	L	20.50
ital_supr_l	ital_supr	L	20.75

Que 7 .Pizzas priced between $15.00 and $17.00.

```
select * from pizzas where
  price  between 15.00 and 17.00;
```

pizza_id	pizza_type_id	size	price
bbq_ckn_m	bbq_ckn	M	16.75
big_meat_m	big_meat	M	16.00
calabrese_m	calabrese	M	16.25
cali_ckn_m	cali_ckn	M	16.75
ckn_alfredo_m	ckn_alfredo	M	16.75
ckn_pesto_m	ckn_pesto	M	16.75
classic_dlx_m	classic_dlx	M	16.00
five_cheese_m	five_cheese	M	15.50
green_garden_m	green_garden	M	16.00
hawaiian_l	hawaiian	L	16.50
ital_cpclo_m	ital_cpclo	M	16.00
ital_supr_m	ital_supr	M	16.50
ital_veggie_m	ital_veggie	M	16.75
mediterraneo_m	mediterraneo	M	16.00
mexicana_m	mexicana	M	16.00

Que 8 .Pizzas with "Chicken"in the name.

```sql
select
p.pizza_id,
pt.name,
p.size,
p.price
from pizzas p
join pizza_types pt on pt.pizza_type_id = p.pizza_type_id
where pt.name like "%Chicken%";
```

pizza_id	pizza_type_id	size	price
bbq_ckn_m	bbq_ckn	M	16.75
big_meat_m	big_meat	M	16.00
calabrese_m	calabrese	M	16.25
cali_ckn_m	cali_ckn	M	16.75
ckn_alfredo_m	ckn_alfredo	M	16.75
ckn_pesto_m	ckn_pesto	M	16.75
classic_dlx_m	classic_dlx	M	16.00
five_cheese_m	five_cheese	M	15.50
green_garden_m	green_garden	M	16.00
hawaiian_l	hawaiian	L	16.50
ital_cpclo_m	ital_cpclo	M	16.00
ital_supr_m	ital_supr	M	16.50
ital_veggie_m	ital_veggie	M	16.75
mediterraneo_m	mediterraneo	M	16.00
mexicana_m	mexicana	M	16.00

Que 9 .Orders on '2015-02-15' or placed after 8 PM.

```
select * from orders where date ='2015-02-15' or
 time > '20:00:00';
```

order_id	date	time
60	2015-01-01	20:05:16
61	2015-01-01	20:08:43
62	2015-01-01	20:50:16
63	2015-01-01	20:51:42
64	2015-01-01	20:52:08
65	2015-01-01	21:16:00
66	2015-01-01	21:47:55
67	2015-01-01	22:03:40
68	2015-01-01	22:07:32
69	2015-01-01	22:12:13
123	2015-01-02	20:12:09
124	2015-01-02	20:12:34
125	2015-01-02	20:31:06
126	2015-01-02	20:53:42
127	2015-01-02	20:58:23
128	2015-01-02	21:05:06
129	2015-01-02	21:13:02
130	2015-01-02	21:14:55
131	2015-01-02	21:33:10
132	2015-01-02	21:42:45

Phase 3: Sales Performance

Que 10 .Total quantity of pizzas sold (SUM).

```sql
select sum(quantity) as Total_quantity
 from order_details;
```

	Total_quantity
▶	49574

Que 11 .Average pizza price (AVG).

```sql
select
round(avg(price),2) as Avg_price
 from pizzas;
```

Avg_price
16.44

Que 12 .Total order value per order (JOIN,SUM,GROUP BY).

```sql
select od.order_id,
round(sum(od.quantity*p.price),2) as total_order
from order_details od join pizzas p
on od.pizza_id = p.pizza_id
group by order_id;
```

order_id	total_order
1	13.25
2	92.00
3	37.25
4	16.50
5	16.50
6	24.75
7	12.50
8	12.50
9	143.25
10	41.00
11	73.50
12	70.75
13	20.25
14	12.00
15	63.25
16	50.70
17	184.50
18	20.50

Que 13 .Total quantity sold per pizza category (JOIN,GROUP BY).

```sql
 select pt.category,
sum(od.quantity) as total_quantity_sold
from  pizzas p join pizza_types  pt
on pt.pizza_id = p.pizza_id
group by pt.category
order by total_quantity_sold desc;
use idc_pizza;
```

order_id	total_order
1	13.25
2	92.00
3	37.25
4	16.50
5	16.50
6	24.75
7	12.50
8	12.50
9	143.25
10	41.00
11	73.50
12	70.75
13	20.25
14	12.00
15	63.25
16	50.70
17	184.50
18	20.50

Que 14 .Categories with more than 5,000 pizzas sold (HAVING).

```sql
select pt.category,
sum(od.quantity) as total_quantity_sold
from order_details od join pizzas p
on od.pizza_id = p.pizza_id
join pizza_types pt on pt.pizza_type_id = p.pizza_type_id
group by pt.category
having sum(od.quantity) > 5000;
```

category	total_quantity_sold
Classic	14888
Veggie	11649
Supreme	11987
Chicken	11050

Que 15 .Pizzas never ordered (LEFT/RIGHT JOIN).

```sql
SELECT p.pizza_id,
p.pizza_type_id,
p.size,
p.price
from pizzas p left join
order_details od on od. pizza_id = p.pizza_id
where od.order_details_id is null;
```

pizza_id	pizza_type_id	size	price
big_meat_l	big_meat	L	20.50
big_meat_m	big_meat	M	16.00
five_cheese_m	five_cheese	M	15.50
five_cheese_s	five_cheese	S	12.50
four_cheese_s	four_cheese	S	11.75

Que 16 .Price differences between different sizes of the same pizza (SELF JOIN).

```sql
select a.pizza_type_id,
a.size as size_1,
a.price as price_1,
b.size as size_2,
b.price as price_2,
(a.price-b.price )as price_difference
from pizzas a join pizzas b
on a. pizza_type_id = b.pizza_type_id
and a.size < b.size;
```

pizza_type_id	size_1	price_1	size_2	price_2	price_
bbq_ckn	L	20.75	M	16.75	4.00
bbq_ckn	M	16.75	S	12.75	4.00
bbq_ckn	L	20.75	S	12.75	8.00
big_meat	L	20.50	M	16.00	4.50
big_meat	M	16.00	S	12.00	4.00
big_meat	L	20.50	S	12.00	8.50
calabrese	L	20.25	M	16.25	4.00
calabrese	M	16.25	S	12.25	4.00
calabrese	L	20.25	S	12.25	8.00
cali_ckn	L	20.75	M	16.75	4.00
cali_ckn	M	16.75	S	12.75	4.00
cali_ckn	L	20.75	S	12.75	8.00
ckn_alfredo	L	20.75	M	16.75	4.00
ckn_alfredo	M	16.75	S	12.75	4.00
ckn_alfredo	L	20.75	S	12.75	8.00
ckn_pesto	L	20.75	M	16.75	4.00
ckn_pesto	M	16.75	S	12.75	4.00
ckn_pesto	L	20.75	S	12.75	8.00

Key Insights

- Total pizza sales volume is high, showing strong customer demand across categories.
- Large and Extra-Large pizza sizes are the most popular, contributing significantly to revenue.
- Some pizza categories sold more than 5,000 units, indicating clear top performers.
- A few pizzas were never ordered, suggesting low customer interest or lack of visibility.
- Ingredients data contains missing values, highlighting a need for data cleaning and standardization.
- Price variation across sizes shows customers are willing to pay a premium for larger portions.

THANK YOU

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