



PIZZA STORE

HOME

ABOUT

MORE



THE GREAT PIZZA ANALYTICS CHALLENGE

by Tejaswini Mudunuru

★ Project Overview

In this challenge, I worked as a Data Analyst at IDC Pizza, transforming raw pizza sales data into valuable business insights using SQL.

Skills & Concepts Covered:

- Creating databases & table structures
- Filtering data using operators (WHERE, IN, BETWEEN, LIKE)
- Aggregations (SUM, AVG, COUNT, MIN, MAX) with GROUP BY & HAVING
- Joins: INNER, LEFT, RIGHT & SELF JOIN
- Handling missing & duplicate data (DISTINCT, COALESCE, NULL checks)

TABLES

- 1. *Order_details*** : orders_details_id, order_id, pizza_id, quantity
- 2. *Orders*** : order_id, date, time
- 3. *pizzas*** : pizza_id, pizza_type_id, size, price
- 4. *pizza_types*** : pizza_type_id, name, category, ingredients

Phase 1: Foundation & Inspection

```
1 • use idc_pizza;  
2     -- List all unique pizza categories (DISTINCT).  
3 • SELECT  
4     DISTINCT category  
5     FROM pizza_types;
```

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

| category |
|----------|
| Chicken |
| Classic |
| Supreme |
| Veggie |

```
1     -- Check for pizzas missing a price (IS NULL).  
2 • SELECT * FROM pizzas  
3     WHERE price IS NULL;  
4  
5
```

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

| pizza_id | pizza_type_id | size | price |
|----------|---------------|------|-------|
| | | | |

Handling NULL

```
1  /*Display pizza_type_id, name, and ingredients,  
2   replacing NULL ingredients with "Missing Data". Show first 5 rows.*/  
3  • SELECT  
4    pizza_type_id,  
5    name,  
6    coalesce(ingredients, 'Missing Data') AS ingredients  
7    FROM pizza_types  
8    LIMIT 5;  
9
```

result Grid | Filter Rows: | Export: | Wrap Cell Content: | Fetch rows:

| pizza_type_id | name | ingredients |
|---------------|------------------------------|--|
| bbq_ckn | The Barbecue Chicken Pizza | Barbecued Chicken, Red Peppers, Green Pepp... |
| cali_ckn | The California Chicken Pizza | Chicken, Artichoke, Spinach, Garlic, Jalapeno P... |
| dkn_alfredo | The Chicken Alfredo Pizza | Chicken, Red Onions, Red Peppers, Mushrooms... |
| dkn_pesto | The Chicken Pesto Pizza | Chicken, Tomatoes, Red Peppers, Spinach, Garl... |
| southw_ckn | The Southwest Chicken Pizza | Chicken, Tomatoes, Red Peppers, Red Onions, ... |

Phase 2: Filtering & Exploration

```
4    -- Orders placed on '2015-01-01'  
5 •  SELECT * FROM idc_pizza.orders;
```

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

```
3    -- List pizzas with price descending.  
4 •  SELECT * FROM pizzas  
5      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 | 25.5 |
| brie_carre_s | brie_carre | S | 23.65 |
| ital_veggie_l | ital_veggie | L | 21 |
| spinach_supr_l | spinach_supr | L | 20.75 |
| bbq_ckn_l | bbq_ckn | L | 20.75 |
| cali_ckn_l | cali_ckn | L | 20.75 |
| spicy_ital_l | spicy_ital | L | 20.75 |
| ckn_alfredo_l | ckn_alfredo | L | 20.75 |
| ckn_pasta_l | ckn_pasta | L | 20.75 |

Operators:

```
3    -- Pizzas sold in sizes 'L' or 'XL'.
4 •  SELECT * FROM pizzas
5   WHERE size IN ('L', 'XL');
```

| pizza_id | pizza_type_id | size | price |
|----------------|---------------|------|-------|
| bbq_ckn_l | bbq_ckn | L | 20.75 |
| cali_ckn_l | cali_ckn | L | 20.75 |
| dkn_alfredo_l | dkn_alfredo | L | 20.75 |
| dkn_pesto_l | dkn_pesto | L | 20.75 |
| southw_ckn_l | southw_ckn | L | 20.75 |
| thai_ckn_l | thai_ckn | L | 20.75 |
| big_meat_l | big_meat | L | 20.5 |
| classic_dlx_l | classic_dlx | L | 20.5 |
| hawaiian_l | hawaiian | L | 16.5 |
| ital_cpdlo_l | ital_cpdlo | L | 20.5 |
| napolitana_l | napolitana | L | 20.5 |
| pep_msh_pep... | pep_msh_pep | L | 17.5 |
| pepperoni_l | pepperoni | L | 15.25 |
| the_greek_l | the_greek | L | 20.5 |

```
5    -- Pizzas priced between $15.00 and $17.00.
6 •  SELECT * FROM pizzas
7   WHERE price BETWEEN 15.00 AND 17.00;
```

| pizza_id | pizza_type_id | size | price |
|---------------|---------------|------|-------|
| bbq_ckn_m | bbq_ckn | M | 16.75 |
| cali_ckn_m | cali_ckn | M | 16.75 |
| dkn_alfredo_m | dkn_alfredo | M | 16.75 |
| dkn_pesto_m | dkn_pesto | M | 16.75 |
| southw_ckn_m | southw_ckn | M | 16.75 |
| thai_ckn_m | thai_ckn | M | 16.75 |
| big_meat_m | big_meat | M | 16 |
| classic_dlx_m | classic_dlx | M | 16 |
| hawaiian_l | hawaiian | L | 16.5 |
| ital_cpdlo_m | ital_cpdlo | M | 16 |
| napolitana_m | napolitana | M | 16 |
| pepperoni_l | pepperoni | L | 15.25 |
| the_greek_m | the_greek | M | 16 |
| calabrese_m | calabrese | M | 16.25 |

Like/ OR operator:

```
2  
3      -- Pizzas with "Chicken" in the name.  
4 •  SELECT * FROM pizza_types  
5      WHERE name LIKE '%Chicken%';
```

| | pizza_type_id | name | category | ingredients |
|---|---------------|------------------------------|----------|---|
| ▶ | bbq_ckn | The Barbecue Chicken Pizza | Chicken | Barbecued Chicken, Red Peppers, Green Pepp |
| ▶ | cali_ckn | The California Chicken Pizza | Chicken | Chicken, Artichoke, Spinach, Garlic, Jalapeno |
| ▶ | ckn_alfredo | The Chicken Alfredo Pizza | Chicken | Chicken, Red Onions, Red Peppers, Mushroom |
| ▶ | ckn_pesto | The Chicken Pesto Pizza | Chicken | Chicken, Tomatoes, Red Peppers, Spinach, G |
| ▶ | southw_ckn | The Southwest Chicken Pizza | Chicken | Chicken, Tomatoes, Red Peppers, Red Onions |
| ▶ | thai_ckn | The Thai Chicken Pizza | Chicken | Chicken, Pineapple, Tomatoes, Red Peppers, |

```
2  
3      -- Orders on '2015-02-15' or placed after 8 PM.  
4 •  SELECT * FROM orders  
5      WHERE date = '2015-02-15' OR time > '20:00:00';
```

| | order_id | date | time |
|---|----------|------------|----------|
| ▶ | 60 | 01-01-2015 | 20:05:16 |
| ▶ | 61 | 01-01-2015 | 20:08:43 |
| ▶ | 62 | 01-01-2015 | 20:50:16 |
| ▶ | 63 | 01-01-2015 | 20:51:42 |
| ▶ | 64 | 01-01-2015 | 20:52:08 |
| ▶ | 65 | 01-01-2015 | 21:16:00 |
| ▶ | 66 | 01-01-2015 | 21:47:55 |
| ▶ | 67 | 01-01-2015 | 22:03:40 |
| ▶ | 68 | 01-01-2015 | 22:07:32 |
| ▶ | 69 | 01-01-2015 | 22:12:13 |
| ▶ | 123 | 02-01-2015 | 20:12:09 |
| ▶ | 124 | 02-01-2015 | 20:42:24 |

Phase 3: Sales Performance

Sum & Avg:

```
2      -- Total quantity of pizzas sold.  
3 •  SELECT  
4      sum(quantity) as total_sold  
5      FROM order_details;
```

Result Grid | Filter Rows: Export:

| total_sold |
|------------|
| 6305 |

```
2      -- Average pizza price  
3 •  SELECT  
4      ROUND(AVG(price),2) AS avg_price  
5      FROM pizzas;
```

Result Grid | Filter Rows: Export:

| avg_price |
|-----------|
| 16.44 |

This query calculates how much revenue each order generated by multiplying pizza prices with quantities and summing total per order.

Aggregates item-level sales into order-level totals using JOIN, SUM, and GROUP BY.

Helps understand how much customers spend in each order – important for revenue tracking.

The screenshot shows a MySQL Workbench interface. The query editor window contains the following SQL code:

```
1 -- Total order value per order
2 • SELECT
3     o.order_id,
4     SUM(od.quantity * p.price) AS total_order_value
5     FROM order_details
6     od JOIN pizzas p
7     ON od.pizza_id = p.pizza_id
8     JOIN orders o
9     ON od.order_id = o.order_id
10    GROUP BY o.order_id
11    ORDER BY o.order_id;
```

The result grid displays the following data:

| order_id | total_order_value |
|----------|-------------------|
| 1 | 13.25 |
| 2 | 92 |
| 3 | 37.25 |
| 4 | 16.5 |
| 5 | 16.5 |
| 6 | 24.75 |
| 7 | 12.5 |
| 8 | 12.5 |
| 9 | 143.25 |
| 10 | 41 |
| 11 | 73.5 |
| 12 | 70.75 |

Total Quantity Sold per Pizza Category

(JOIN + GROUP BY)

Identified which pizza category is most loved by customers based on total quantity sold.

CLASSIC category tops the sales chart with the highest number of pizzas sold.

```
1      -- Total quantity sold per pizza category (JOIN, GROUP BY).
2 •  SELECT
3     pt.category, SUM(o.quantity) as total_quantity_sold
4   FROM pizza_types pt
5   JOIN pizzas p
6     ON pt.pizza_type_id = p.pizza_type_id
7   JOIN order_details o
8     ON p.pizza_id=o.pizza_id
9   GROUP BY pt.category
10  ORDER BY total_quantity_sold DESC
```

| Result Grid | | Filter Rows: | Export: | Wrap Cell Content: |
|-------------|----------|---------------------|---------|--------------------|
| | category | total_quantity_sold | | |
| ▶ | Classic | 1870 | | |
| | Supreme | 1567 | | |
| | Veggie | 1505 | | |
| | Chicken | 1363 | | |

Pizzas never ordered :LEFT JOIN + NULL filtering

Identifies pizzas that have never been purchased – useful for menu improvement or removing low-performing items.

```
1      -- Pizzas never ordered
2 •  SELECT
3      p.pizza_id,
4      p.pizza_type_id,
5      p.size, p.price
6  FROM pizzas p
7  LEFT JOIN order_details od
8    ON p.pizza_id = od.pizza_id
9  WHERE od.pizza_id IS NULL;
```

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

| | pizza_id | pizza_type_id | size | price |
|---|---------------|---------------|------|-------|
| ▶ | big_meat_m | big_meat | M | 16 |
| | big_meat_l | big_meat | L | 20.5 |
| | five_cheese_s | five_cheese | S | 12.5 |
| | five_cheese_m | five_cheese | M | 15.5 |
| | four_cheese_s | four_cheese | S | 11.75 |

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

Compares price variations across different sizes of the same pizza type.

- ✓ Helps evaluate pricing strategy
- ✓ Shows upsell pricing opportunities

PRICE DIFFERENCES BETWEEN DIFFERENT SIZES OF THE SAME PIZZA (SELF JOIN).

```
1
2 •   SELECT
3     p1.pizza_type_id,
4     p1.size AS size_1,
5     p1.price AS price_1,
6     p2.size AS size_2,
7     p2.price AS price_2,
8     (p2.price - p1.price) AS price_difference
9   FROM pizzas p1
10  JOIN pizzas p2
11    ON p1.pizza_type_id = p2.pizza_type_id
12  AND p1.size <> p2.size
13  ORDER BY p1.pizza_type_id;
```

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

| pizza_type_id | size_1 | price_1 | size_2 | price_2 | price_difference |
|---------------|--------|---------|--------|---------|------------------|
| bbq_ckn | L | 20.75 | S | 12.75 | -8 |
| bbq_ckn | M | 16.75 | S | 12.75 | -4 |
| bbq_ckn | L | 20.75 | M | 16.75 | -4 |
| bbq_ckn | S | 12.75 | M | 16.75 | 4 |
| bbq_ckn | M | 16.75 | L | 20.75 | 4 |
| bbq_ckn | S | 12.75 | L | 20.75 | 8 |
| big_meat | M | 16 | L | 20.5 | 4.5 |
| big_meat | S | 12 | M | 16 | 4 |
| big_meat | M | 16 | S | 12 | -4 |
| Lg_pizza | L | 20.75 | S | 12.75 | -8 |

Tejaswini Mudunuru (Data Analyst- IDC Pizza)

e-mail: mudunurutejaswini@gmail.com

Turning pizza slices into insights – one query at a
time!”  

Thank You