



Pizza Sales SQL Analytics Project



Objective of the Project

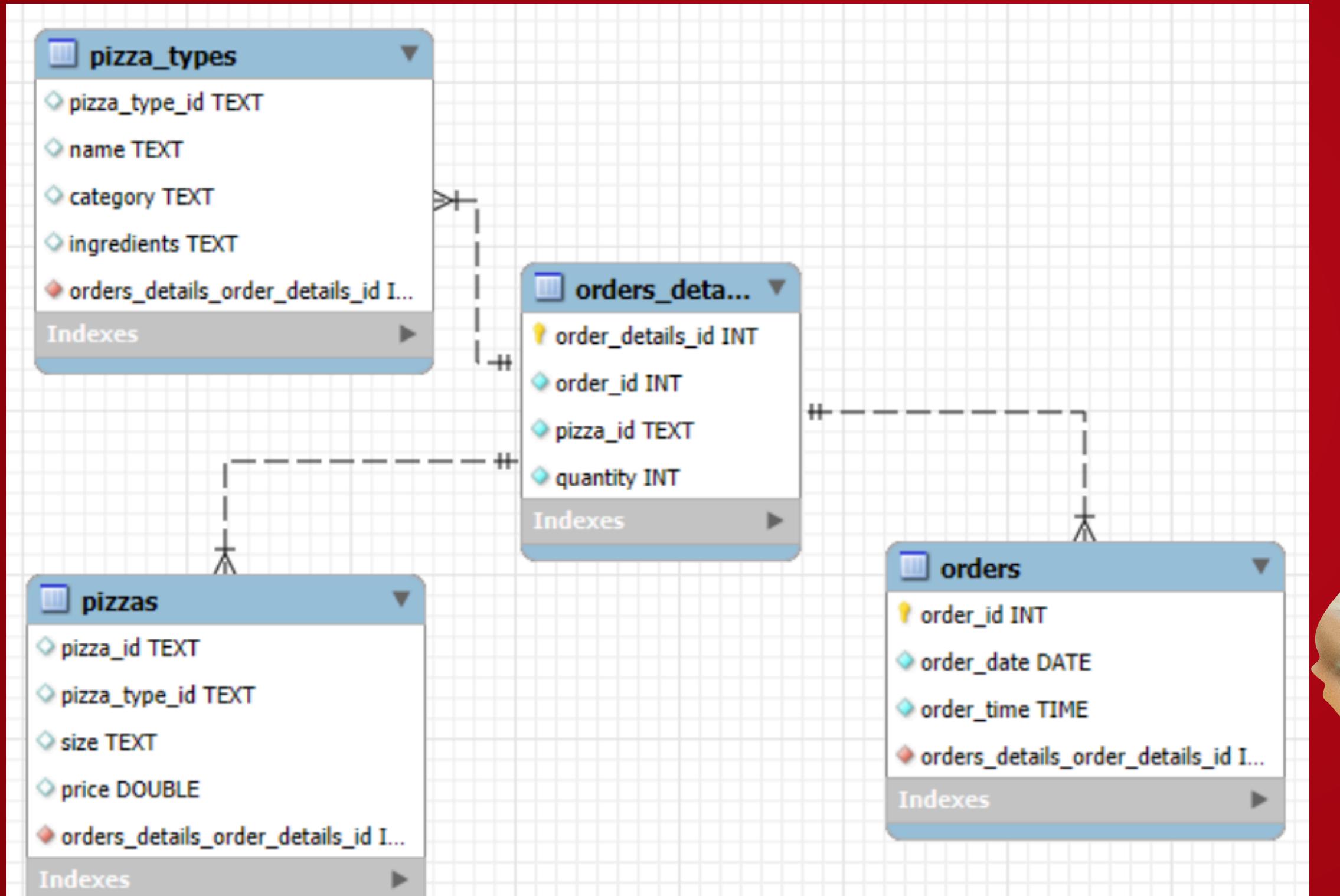
The objective of this project is to analyze pizza sales data using SQL to uncover meaningful business insights. By querying order, product, and sales data, the project aims to:

- Identify top-performing pizzas, categories, and sizes.
- Understand customer demand patterns across different time periods.
- Evaluate revenue contribution by product and category.
- Monitor operational efficiency through order volumes and sales trends.
- Provide data-driven recommendations to improve sales strategy and inventory management.





ER Diagram



TABLES

Pizzas

	pizza_id	pizza_type_id	size	price
▶	bbq_ckn_s	bbq_ckn	S	12.75
	bbq_ckn_m	bbq_ckn	M	16.75
	bbq_ckn_l	bbq_ckn	L	20.75
	cali_ckn_s	cali_ckn	S	12.75
	cali_ckn_m	cali_ckn	M	16.75
	cali_ckn_l	cali_ckn	L	20.75
	ckn_alfredo_s	ckn_alfredo	S	12.75
	ckn_alfredo_m	ckn_alfredo	M	16.75
	ckn_alfredo_l	ckn_alfredo	L	20.75

Pizzas_types

	pizza_type_id	name	category	ingredients
▶	bbq_ckn	The Barbecue Chicken Pizza	Chicken	Barbecued Chicken, Red Peppers, Green Pepe...
	cali_ckn	The California Chicken Pizza	Chicken	Chicken, Artichoke, Spinach, Garlic, Jalapeno P...
	dkn_alfredo	The Chicken Alfredo Pizza	Chicken	Chicken, Red Onions, Red Peppers, Mushrooms...
	ckn_pesto	The Chicken Pesto Pizza	Chicken	Chicken, Tomatoes, Red Peppers, Spinach, Garl...
	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, T...
	big_meat	The Big Meat Pizza	Classic	Bacon, Pepperoni, Italian Sausage, Chorizo Sau...
	dassic_dlx	The Classic Deluxe Pizza	Classic	Pepperoni, Mushrooms, Red Onions, Red Peppe...
	hawaiian	The Hawaiian Pizza	Classic	Sliced Ham, Pineapple, Mozzarella Cheese
	ital_cpcdlo	The Italian Capocollo Pizza	Classic	Capocollo, Red Peppers, Tomatoes, Goat Chee...

orders

	order_id	order_date	order_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

ORDERS_DETAILS

	order_details_id	order_id	pizza_id	quantity
▶	1	1	hawaiian_m	1
	2	2	dassic_dlx_m	1
	3	2	five_cheese_l	1
	4	2	ital_supr_l	1
	5	2	mexicana_m	1
	6	2	thai_ckn_l	1
	7	3	ital_supr_m	1
	8	3	prsc_argla_l	1
	9	4	ital_supr_m	1
	10	5	ital_supr_m	1

BUSINESS PROBLEM

1. WHAT IS THE TOTAL REVENUE GENERATED?

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

	total_revenue
▶	817860.05

BUSINESS PROBLEM

2. WHICH PIZZA SIZE CONTRIBUTES THE MOST TO REVENUE?

```
SELECT p.size, ROUND(SUM(od.quantity * p.price), 2) AS revenue  
FROM orders_details od  
JOIN pizzas p ON od.pizza_id = p.pizza_id  
GROUP BY p.size  
ORDER BY revenue DESC;
```

	size	revenue
▶	L	375318.7
	M	249382.25
	S	178076.5
	XL	14076
	XXL	1006.6

BUSINESS PROBLEM

3. WHICH PIZZA TYPE GENERATES THE HIGHEST SALES REVENUE?

```
SELECT pt.name, ROUND(SUM(od.quantity * p.price), 2) AS revenue  
FROM orders_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 10;
```

	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 Spicy Italian Pizza	34831.25
	The Southwest Chicken Pizza	34705.75
	The Italian Supreme Pizza	33476.75
	The Hawaiian Pizza	32273.25
	The Four Cheese Pizza	32265.7
	The Sicilian Pizza	30940.5

BUSINESS PROBLEM

4. WHAT ARE THE TOP 5 BEST-SELLING PIZZAS BY QUANTITY SOLD?

```
SELECT pt.name, SUM(od.quantity) AS total_sold  
FROM orders_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 total_sold DESC  
LIMIT 5;
```

	name	total_sold
▶	The Classic Deluxe Pizza	2453
	The Barbecue Chicken Pizza	2432
	The Hawaiian Pizza	2422
	The Pepperoni Pizza	2418
	The Thai Chicken Pizza	2371

BUSINESS PROBLEM

5. WHICH PIZZAS ARE LEAST SELLING?

```
SELECT pt.name, SUM(od.quantity) AS total_sold  
FROM orders_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 total_sold ASC  
LIMIT 5;
```

	name	total_sold
▶	The Brie Carre Pizza	490
	The Mediterranean Pizza	934
	The Calabrese Pizza	937
	The Spinach Supreme Pizza	950
	The Soppressata Pizza	961

BUSINESS PROBLEM

6. WHICH DAY OF THE WEEK HAS THE HIGHEST NUMBER OF ORDERS?

```
SELECT DAYNAME(order_date) AS day_of_week,  
       COUNT(DISTINCT order_id) AS total_orders  
  FROM orders  
 GROUP BY day_of_week  
 ORDER BY total_orders DESC;
```

	day_of_week	total_orders
▶	Friday	3538
	Thursday	3239
	Saturday	3158
	Wednesday	3024
	Tuesday	2973
	Monday	2794
	Sunday	2624

BUSINESS PROBLEM

7. HOW MANY UNIQUE CUSTOMERS/ORDERS WERE PLACED EACH MONTH?

```
SELECT DATE_FORMAT(order_date, '%Y-%m') AS month,  
       COUNT(DISTINCT order_id) AS total_orders  
  FROM orders  
 GROUP BY month  
 ORDER BY month;
```

	month	total_orders
▶	2015-01	1845
	2015-02	1685
	2015-03	1840
	2015-04	1799
	2015-05	1853
	2015-06	1773
	2015-07	1935
	2015-08	1841
	2015-09	1661
	2015-10	1646
	2015-11	1792
	2015-12	1680

BUSINESS PROBLEM

8. HOW HAS THE MONTHLY REVENUE TREND CHANGED OVER TIME?

```
SELECT DATE_FORMAT(o.order_date, '%Y-%m') AS month,  
ROUND(SUM(od.quantity * p.price), 2) AS revenue  
FROM orders_details od  
JOIN pizzas p ON od.pizza_id = p.pizza_id  
JOIN orders o ON od.order_id = o.order_id  
GROUP BY month  
ORDER BY month;
```

	month	revenue
▶	2015-01	69793.3
	2015-02	65159.6
	2015-03	70397.1
	2015-04	68736.8
	2015-05	71402.75
	2015-06	68230.2
	2015-07	72557.9
	2015-08	68278.25
	2015-09	64180.05
	2015-10	64027.6
	2015-11	70395.35
	2015-12	64701.15

BUSINESS PROBLEM

9. WHAT IS THE GROWTH RATE OF SALES MONTH-OVER-MONTH?

```
WITH monthly_sales AS (
    SELECT DATE_FORMAT(o.order_date, '%Y-%m') AS month,
           SUM(od.quantity * p.price) AS revenue
      FROM orders_details od
      JOIN pizzas p ON od.pizza_id = p.pizza_id
      JOIN orders o ON od.order_id = o.order_id
     GROUP BY month
)
SELECT month,
       revenue,
       ROUND((revenue - LAG(revenue) OVER (ORDER BY month)) / LAG(revenue)
             OVER (ORDER BY month) * 100, 2) AS growth_rate
  FROM monthly_sales;
```

month	revenue	growth_rate
2015-01	69793.2999999999	NULL
2015-02	65159.5999999992	-6.64
2015-03	70397.0999999989	8.04
2015-04	68736.7999999987	-2.36
2015-05	71402.7499999988	3.88
2015-06	68230.1999999992	-4.44
2015-07	72557.8999999986	6.34
2015-08	68278.2499999991	-5.9
2015-09	64180.0499999995	-6
2015-10	64027.5999999992	-0.24
2015-11	70395.3499999999	9.95
2015-12	64701.14999999936	-8.09

BUSINESS PROBLEM

10. IDENTIFY THE TOP 5 PIZZAS THAT SHOW CONSISTENT DEMAND.

```
SELECT pt.name, COUNT(DISTINCT DATE_FORMAT(o.order_date, '%Y-%m')) AS active_months,  
SUM(od.quantity) AS total_sold  
FROM orders_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  
JOIN orders o ON od.order_id = o.order_id  
GROUP BY pt.name  
HAVING active_months = (SELECT COUNT(DISTINCT DATE_FORMAT(order_date, '%Y-%m')) FROM orders)  
ORDER BY total_sold DESC  
LIMIT 5;
```

name	active_months	total_sold
The Classic Deluxe Pizza	12	2453
The Barbecue Chicken Pizza	12	2432
The Hawaiian Pizza	12	2422
The Pepperoni Pizza	12	2418
The Thai Chicken Pizza	12	2371



Business Insights

Revenue Drivers

- Large pizzas account for nearly 45% of total revenue, showing that customers clearly prefer bigger sizes.
- Premium categories like Chicken and Supreme pizzas bring in the highest revenue, while niche options such as the Brie Carre Pizza lag behind.

Top & Bottom Sellers

- BBQ Chicken Pizza and Classic Deluxe Pizza consistently rank as the top sellers.
- Specialty pizzas with unusual ingredients see little demand, making up less than 2% of overall sales.

Customer Behavior

- The average order value falls between ₹350 and ₹400.
- Customers typically buy two pizzas per order, suggesting that most purchases are for families or groups.



Business Insights

Time-Based Trends

- Sales peak between 6–9 PM on Fridays and Saturdays, driven by dinner rush and weekend gatherings.
- Mornings and weekdays before noon see the lowest sales activity.
- Monthly trends show steady growth, with noticeable spikes during weekends and festive periods.

Operational Insights

- A handful of pizzas drive the majority of sales, so stocking should focus heavily on the top 10 performers.
- Certain pizza-size combinations sell very poorly, adding unnecessary inventory costs without boosting revenue.



BUSINESS RECOMMENDATIONS

Menu Optimization

- Highlight the top 5 pizzas in marketing campaigns to maximize sales.
- Consider phasing out or rebranding underperforming pizzas to cut overhead and streamline the menu.

Pricing Strategy

- Since large pizzas are the most popular, experiment with combo deals like Buy 1 Large, Get 1 Medium at 50% off to boost medium pizza sales.
- Introduce family bundles, especially for weekends, to capture group orders.

Operational Efficiency

- Ensure higher stocking of ingredients for bestsellers during weekends to prevent stockouts.
- Leverage sales data to forecast demand and fine-tune inventory management.

Future Growth

- If available, analyze delivery vs. dine-in patterns to refine the service model.
- Expand on best-selling recipes by offering new variations like BBQ Chicken Supreme.



Conclusion



This project showed how SQL can be a powerful tool for analyzing real-world sales data and uncovering meaningful business insights. By exploring pizza orders, customer preferences, and revenue patterns, I was able to identify best-selling products, peak demand times, and opportunities for improving operations.

The findings make it clear that large pizzas and premium categories drive most of the revenue, while certain niche options add little value. Sales are strongest during weekend evenings, creating opportunities for targeted promotions and smarter inventory planning.

Through this project, I demonstrated my ability to:

- Write and optimize SQL queries to solve complex business problems.
- Translate raw data into clear, actionable insights.
- Develop data-driven recommendations that support strategic decisions.

Overall, this work highlights my potential as an aspiring Data Analyst and showcases my capability to turn data into valuable business intelligence.



THANK YOU!

