

PIZZA ANALYSIS



PIZZA PROJECT

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Project Objective

The objective of this project is to use SQL to analyze the Pizza dataset, which includes tables for pizzas, pizza types, orders, and order details. We aim to uncover sales trends, customer preferences, operational efficiencies, and revenue insights to optimize business operations and enhance customer satisfaction.



Creating table in SQL database



A database named “pizzahut” has been created. Four tables in the form of CSV files are imported into this database.

The CSV files “pizzas” and “pizza_types” are imported directly due to their small row count. The other two CSV files, “orders” and “orders_detail,” are imported into existing tables within the database using the query mentioned in the picture.

The screenshot shows a MySQL Workbench interface with the following SQL code:

```
1 •  create database pizzahut;
2
3 •  create table orders (
4     order_id int not null,
5     order_date date not null,
6     order_time time not null,
7     primary key(order_id)  );
8
9 •  create table order_details (
10    order_details_id int not null,
11    order_id int not null,
12    pizza_id text not null,
13    quantity int not null,
14    primary key(order_details_id)  );
```

Insights and Recommendations

- **QUESTION 1 : The total revenue generated from pizza sales.**

QUERY:

```
SELECT
    ROUND(SUM(order_details.quantity * pizzas.price),
          2) AS total_sales
FROM
    order_details
    JOIN
    pizzas ON pizzas.pizza_id = order_details.pizza_id
```

OUTPUT:

	total_sales
▶	817860.05

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- The total revenue generated from pizza sales amounts to \$817,860.05. This impressive figure highlights the strong demand for pizzas and underscores their significant contribution to the overall revenue. Focusing on maintaining the quality and variety of pizza offerings could further enhance sales and customer satisfaction.

- **QUESTION 2: The highest-priced pizza.**

QUERY:

```
SELECT pizza_types.name, pizzas.price
FROM
    pizza_types
    JOIN
        pizzas ON pizza_types.pizza_type_id = pizzas.pizza_type_id
ORDER BY pizzas.price DESC
LIMIT 1;
```

OUTPUT:

	name	price
▶	The Greek Pizza	35.95

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- The high priced Pizza type is The Greek Pizza of \$35.95 suggests that it may include premium ingredients or a unique recipe that justifies its cost. This could make it a special item on the menu, appealing to customers looking for a gourmet pizza experience.

- **QUESTION 3: The top 5 most ordered pizza types along with their quantities.**

QUERY:

```
SELECT pizza_types.name, SUM(order_details.quantity) AS quantity
FROM pizza_types JOIN pizzas
ON pizza_types.pizza_type_id = pizzas.pizza_type_id
JOIN order_details ON order_details.pizza_id = pizzas.pizza_id
GROUP BY pizza_types.name
ORDER BY quantity DESC
LIMIT 5;
```

OUTPUT:

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

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- This insight reveals that The Classic Deluxe Pizza is the most popular choice among customers, closely followed by The Barbecue Chicken Pizza and The Hawaiian Pizza. This suggests a strong preference for traditional and familiar flavors, with a notable interest in speciality pizzas like The Thai Chicken Pizza. Understanding these preferences can help in optimizing inventory, planning promotions, and refining the menu to better cater to customer demand.

- **QUESTION 4: The most common pizza size ordered.**

QUERY:

```
SELECT pizzas.size,  
       COUNT(order_details.order_details_id) AS order_count  
  FROM pizzas JOIN order_details  
 WHERE pizzas.pizza_id = order_details.pizza_id  
 GROUP BY pizzas.size  
 ORDER BY order_count DESC;
```

OUTPUT:

	size	order_count
▶	L	18526
	M	15385
	S	14137
	XL	544
	XXL	28

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- Based on the Output acquired from Query, the most common pizza size ordered is Large (L), with a total of 18,526 orders. This indicates a strong customer preference for larger pizzas, likely due to perceived value for money and suitability for group dining. Understanding this preference can help in optimizing inventory and marketing strategies to cater to customer demand effectively.

- **QUESTION 5: The total quantity of each pizza category ordered.**

QUERY:

```
SELECT
    pizza_types.category,
    SUM(order_details.quantity) AS quantity
FROM
    pizza_types
    JOIN
    pizzas ON pizza_types.pizza_type_id = pizzas.pizza_type_id
    JOIN
    order_details ON order_details.pizza_id = pizzas.pizza_id
GROUP BY pizza_types.category
ORDER BY quantity DESC;
```

OUTPUT:

	category	quantity
▶	Classic	14888
	Supreme	11987
	Veggie	11649
	Chicken	11050

- The Classic pizza category generates the highest revenue at 26.91, followed by Supreme, Chicken, and Veggie pizzas. This indicates that Classic pizzas are the most popular among customers, contributing the most to overall sales.
- To maximize revenue and customer satisfaction, it is recommended to enhance marketing efforts for Classic pizzas and develop promotional strategies for Supreme, Chicken, and Veggie pizzas. Gathering customer feedback can help improve the less popular categories, and analyzing the cost and profit margins of each category will ensure all pizzas contribute positively to the business.

- **QUESTION 6: The distribution of orders by hour of the day.**

QUERY:

```
SELECT  
    HOUR(order_time) AS hour, COUNT(order_id) AS order_count  
FROM  
    orders  
GROUP BY HOUR(order_time);
```

OUTPUT:

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

- The data shows that the highest number of orders occurs at 12 PM Noon with 2,520 orders, indicating a peak during lunchtime. Another busy period starts at 4 PM, peaking at 6 PM with 2,399 orders, likely due to dinner demand. Early morning hours, especially 9 AM, see minimal orders as not much people prefer Pizza at morning hours which can be quite neglected to prepare more stocks to serve around 11 AM. Give attention on optimize operations, increase staffing during peak hours, consider promotions during slower times, and evaluate the necessity of operations based on low demand.

- **QUESTION 7: The orders by date and the average number of pizzas ordered per day.**

QUERY:

```
SELECT
    ROUND(AVG(quantity), 0) as avg_pizzas_ordered_per_day
FROM
    (SELECT
        orders.order_date, SUM(order_details.quantity) AS quantity
    FROM
        orders
    JOIN order_details ON orders.order_id = order_details.order_id
    GROUP BY orders.order_date) AS order_quantity;
```

OUTPUT:

avg_pizzas_ordered_per_day
138

- The data shows that the average number of pizzas ordered per day is 138, indicating a stable and consistent demand. This steady average helps in efficient inventory planning, ensuring sufficient ingredients without overstocking. It also aids in scheduling staff appropriately to handle daily orders and supports future sales forecasting for informed business decisions.

- **QUESTION 8: The top 3 most ordered pizza types based on revenue.**

QUERY:

```
SELECT
    pizza_types.name,
    SUM(order_details.quantity * pizzas.price) AS revenue
FROM
    pizza_types
        JOIN
    pizzas ON pizzas.pizza_type_id = pizza_types.pizza_type_id
        JOIN
    order_details ON order_details.pizza_id = pizzas.pizza_id
GROUP BY pizza_types.name
ORDER BY revenue DESC
LIMIT 3;
```

OUTPUT:

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



- The data shows that the top three most ordered pizza types by revenue are The Thai Chicken Pizza, The Barbecue Chicken Pizza, and The California Chicken Pizza, with revenues of 43434.25, 42768, and 41409.5 respectively. This indicates that these flavors are particularly popular among customers and significantly contribute to overall sales.

- **QUESTION 9: The percentage contribution of each pizza type to total revenue.**

QUERY:

```
SELECT
    pizza_types.category,
    ROUND(SUM(order_details.quantity * pizzas.price) / (SELECT
        ROUND(SUM(order_details.quantity * pizzas.price),
        2) AS total_sales
    )
    FROM
        order_details
        JOIN
            pizzas ON pizzas.pizza_id = order_details.pizza_id) * 100,
    2) AS revenue
FROM
    pizza_types
    JOIN
        pizzas ON pizza_types.pizza_type_id = pizzas.pizza_type_id
    JOIN
        order_details ON order_details.pizza_id = pizzas.pizza_id
GROUP BY pizza_types.category
ORDER BY revenue DESC;
```

OUTPUT:

	category	revenue
▶	Classic	26.91
	Supreme	25.46
	Chicken	23.96
	Veggie	23.68

- The data shows that the Classic pizza contributes the highest percentage to total revenue at 26.91%, followed by the Supreme pizza at 25.46%. The Chicken and Veggie pizzas contribute 23.96% and 23.68% respectively. This indicates that while all pizza types have a significant share, the Classic pizza is the most popular in terms of revenue generation.

- **QUESTION 10: The top 3 most ordered pizza types based on revenue for each pizza category**

QUERY:

```
select name, revenue from
(select category, name, revenue,
rank() over(partition by category order by revenue desc) as rn
from
(select pizza_types.category, pizza_types.name,
sum((order_details.quantity) * pizzas.price) as revenue
from pizza_types join pizzas
on pizza_types.pizza_type_id = pizzas.pizza_type_id
join order_details
on order_details.pizza_id = pizzas.pizza_id
group by pizza_types.category, pizza_types.name) as a) as b
where rn <=3;
```

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OUTPUT:

	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 Hawaiian Pizza	32273.25
	The Pepperoni Pizza	30161.75
	The Spicy Italian Pizza	34831.25
	The Italian Supreme Pizza	33476.75
	The Sicilian Pizza	30940.5
	The Four Cheese Pizza	32265.70000000065
	The Mexicana Pizza	26780.75
	The Five Cheese Pizza	26066.5

- The data shows that The Thai Chicken Pizza, The Classic Deluxe Pizza, and The Spicy Italian Pizza are the top revenue generators in their respective categories. This indicates a strong customer preference for these flavors, making them significant contributors to overall sales.