Pizza Sales Data Analysis: An SQL Deep Dive

Goal: *Utilizing Advanced SQL Techniques (Joins, Sub-queries, Window Functions)*

- ***Primary Tool:*** *SQL (MySQL Workbench)*
- ***Data Source:*** *Pizza Sales Dataset*
- ***Reporting/Visualization:*** *Canva*

Presented By: **Riya Bhatt**

LinkedIn: https://www.linkedin.com/in/riya-bhatt-3246852b8/
Gmail: riyabhatt005@gmail.com

Project Objectives and Data Schema Overview

Objective : To transform raw, multi-table sales data into meaningful business metrics using advanced SQL queries.

Data Schema Overview : There are 4 tables orders, orders_details, pizzas, pizza_types

1. ***orders*** : Records of each transaction (Date and Time). order_id, order_date, order_time

2. order_details **:** Details of items within each order. order_details_id, order_id (FK), pizza_id (FK), quantity.

3. pizzas **:** Lists all unique pizzas, their sizes, and price. pizza_id, pizza_type_id (FK), size, price.

4. pizza_types **:** Lists the names, categories, and ingredients for each pizza type.pizza_type_id, name, category.

Key Business Questions & Analysis Tiers

Basic:

- Retrieve the total number of orders placed.
- Calculate the total revenue generated from pizza sales.
- Identify the highest-priced pizza.
- Identify the most common pizza size ordered.
- List the top 5 most ordered pizza types along with their quantities.

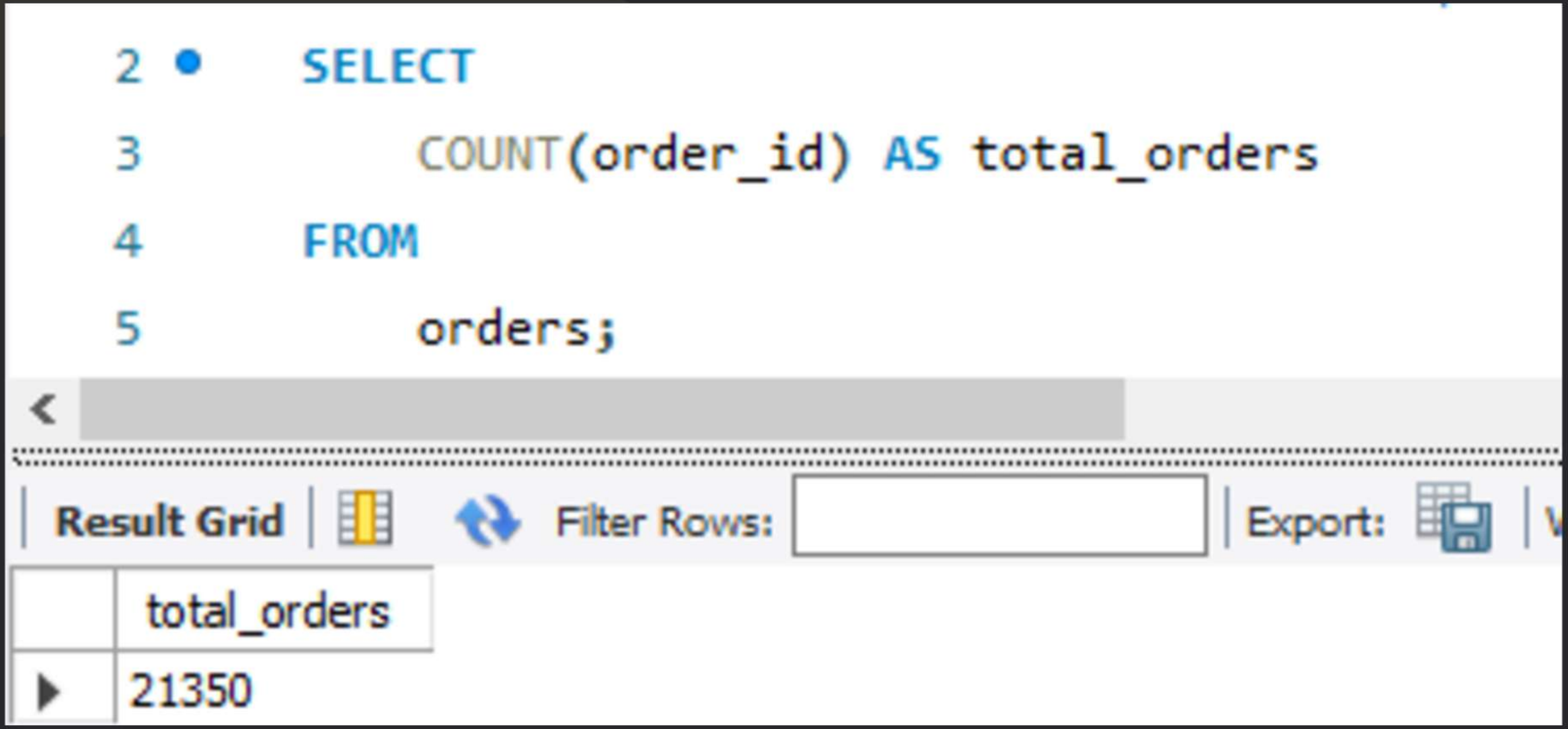
Intermediate:

- Join the necessary tables to find the total quantity of each pizza category ordered.
- Determine the distribution of orders by hour of the day.
- Join relevant tables to find the category-wise distribution of pizzas.
- Group the orders by date and calculate the average number of pizzas ordered per day.
- Determine the top 3 most ordered pizza types based on revenue.

Advanced:

- Calculate the percentage contribution of each pizza type to total revenue.
- Analyze the cumulative revenue generated over time.
- Determine the top 3 most ordered pizza types based on revenue for each pizza category.

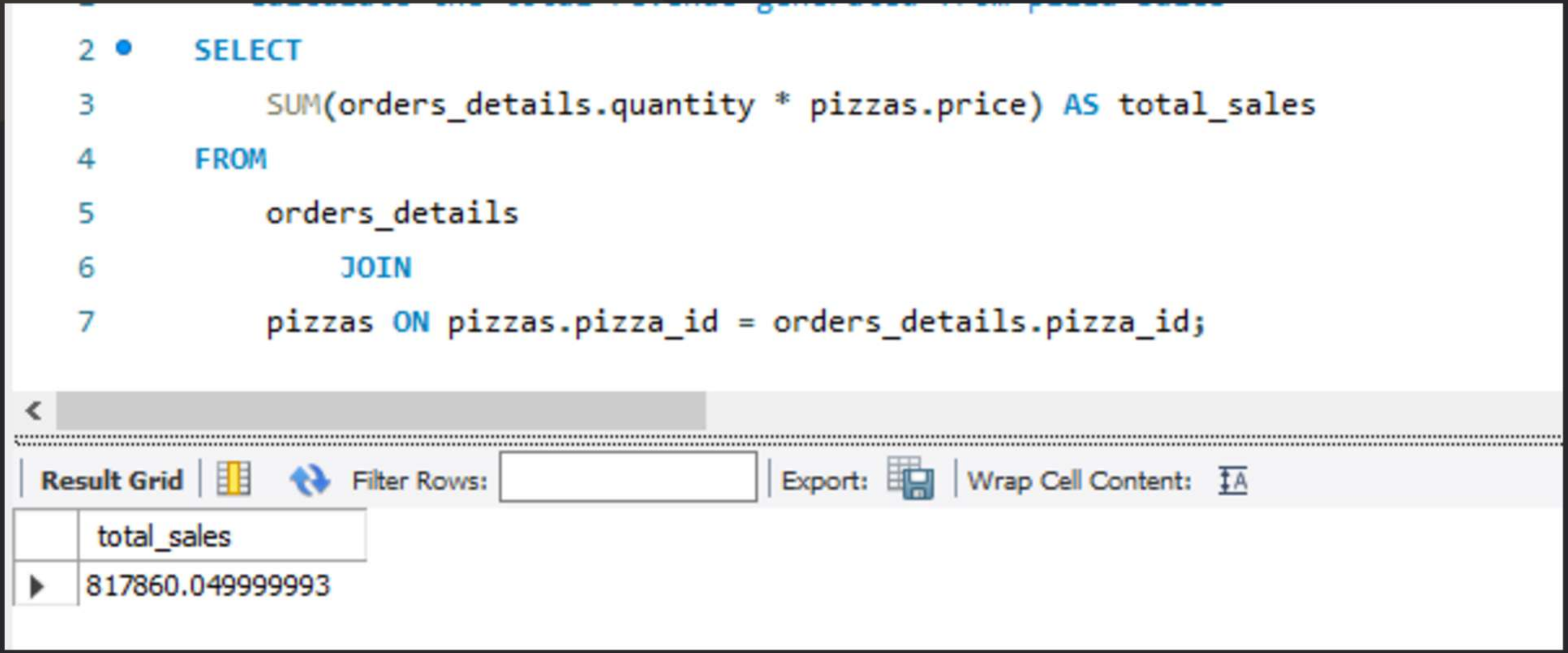
1. Retrieve the total number of orders placed.



```
SELECT
    COUNT(order_id) AS total_orders
FROM
    orders;
```

total_orders
21350

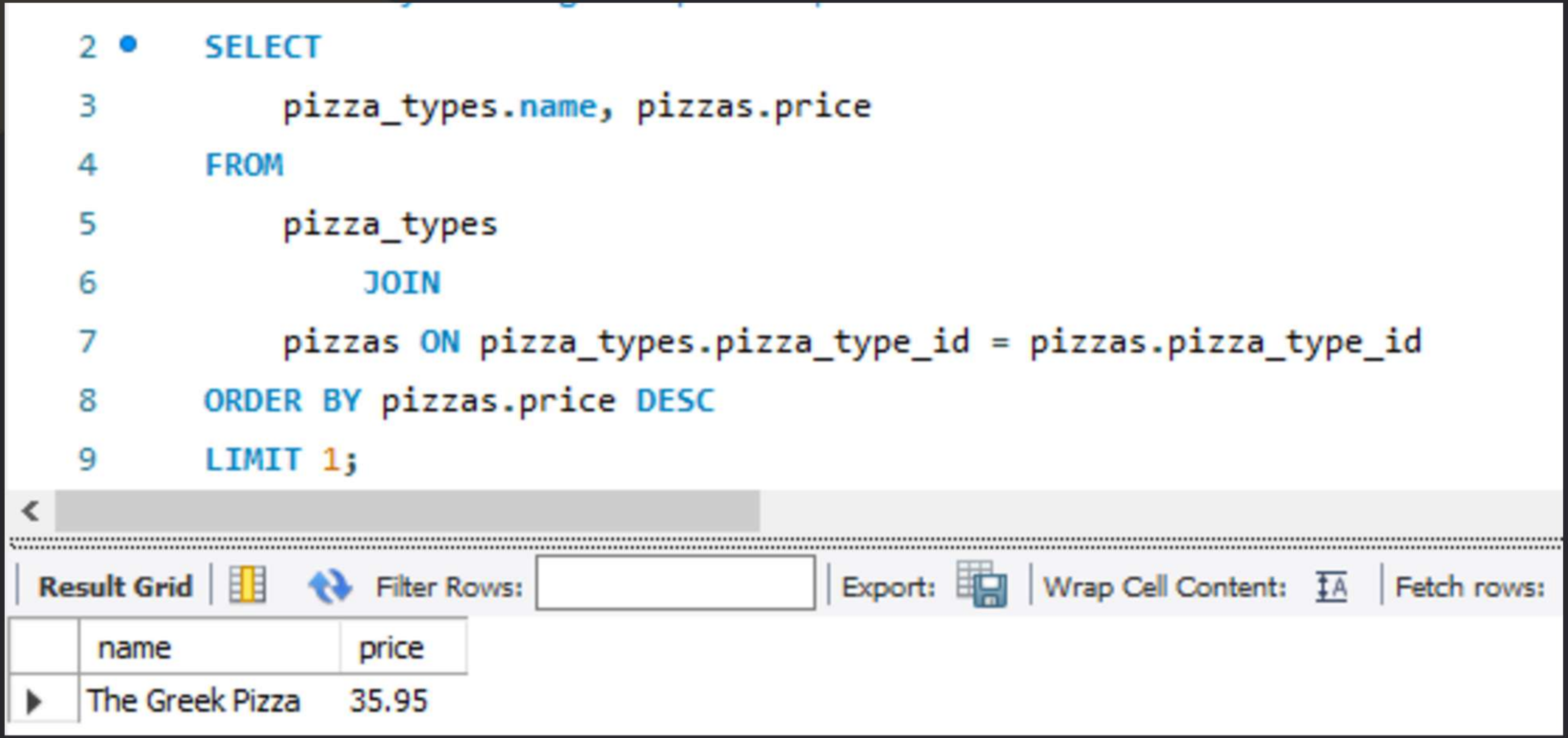
2. Calculate the total revenue generated from pizza sales.



```
SELECT
    SUM(orders_details.quantity * pizzas.price) AS total_sales
FROM
    orders_details
        JOIN
    pizzas ON pizzas.pizza_id = orders_details.pizza_id;
```

```
total_sales
817860.049999993
```

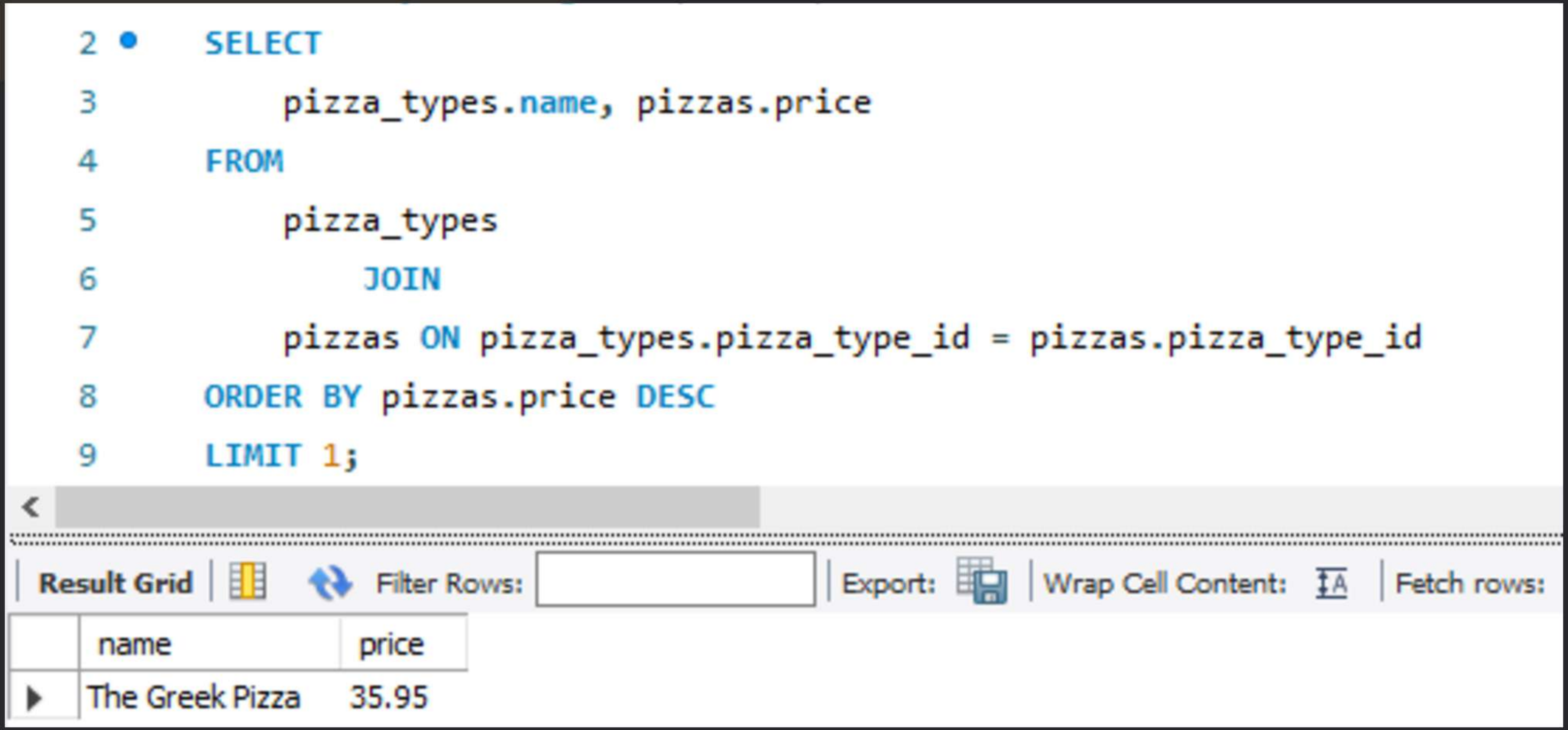
3. Identify the highest-priced pizza.



```sql
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;
```

```
name            price
The Greek Pizza 35.95
```

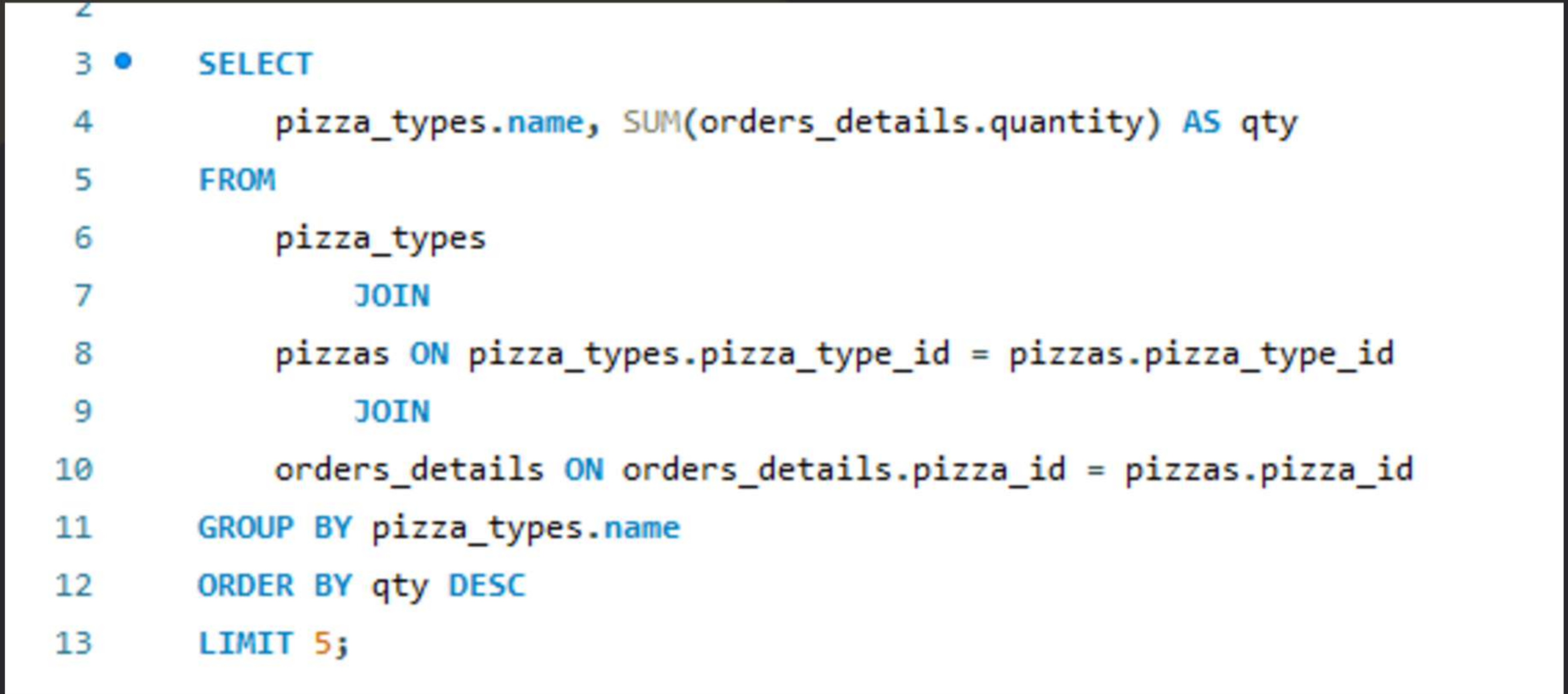
4. Identify the most common pizza size ordered.



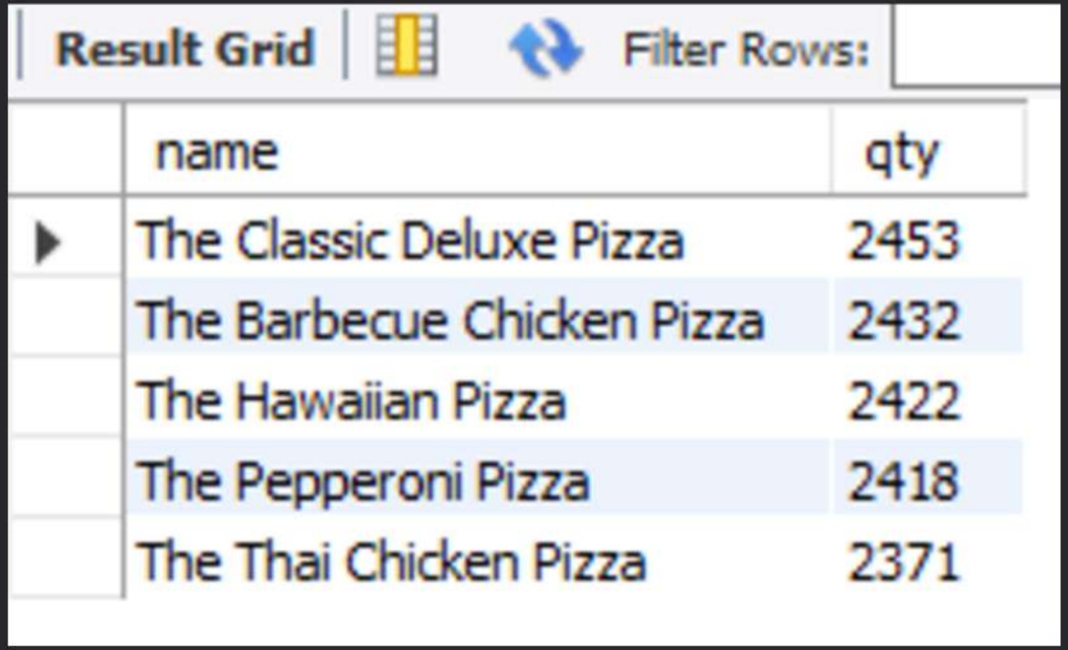
```sql
SELECT
    pizza_types.name, pizzas.price
FROM
    pizza_types
        JOIN
    pizzas ON pizza_types.pizza_type_id = pizzas.pizza_type_id
ORDER BY pizzas.price DESC
LIMIT 1;
```

name	price
The Greek Pizza	35.95

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

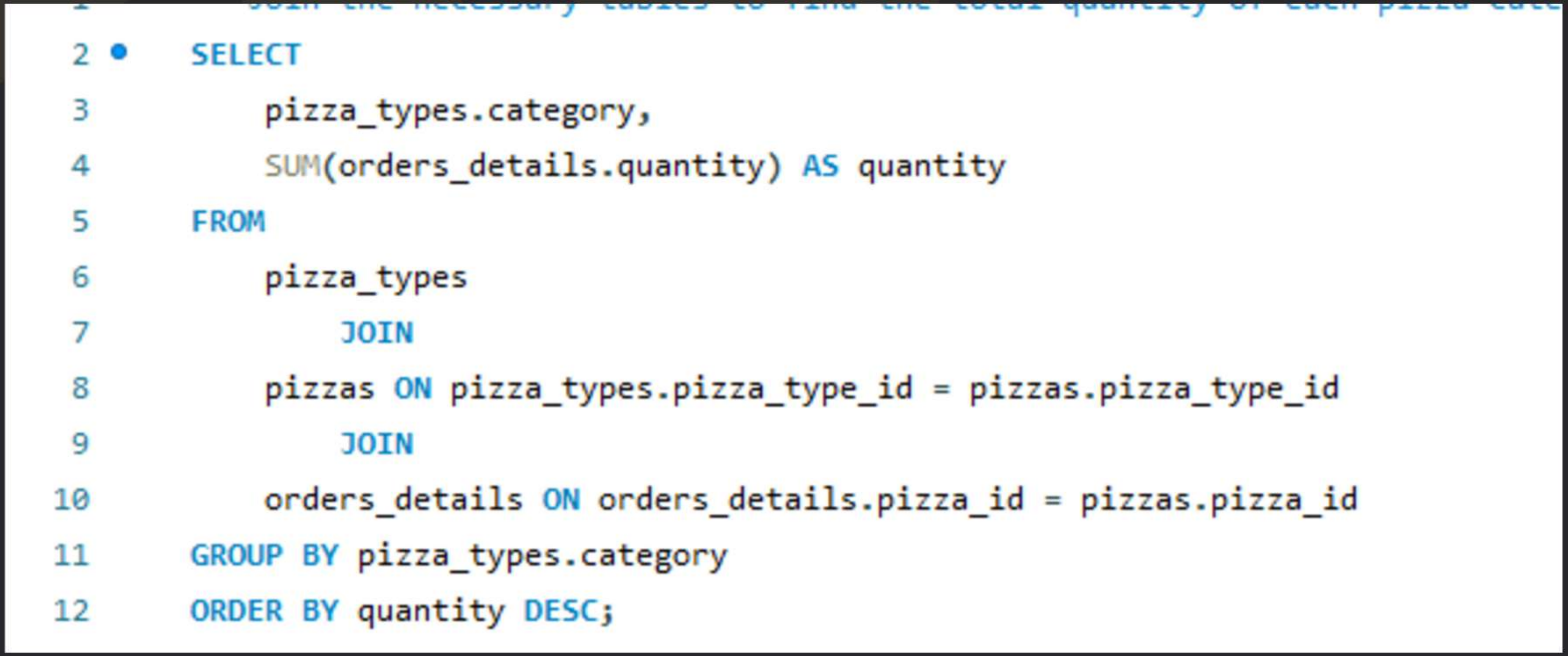


```sql
SELECT
    pizza_types.name, SUM(orders_details.quantity) AS qty
FROM
    pizza_types
        JOIN
    pizzas ON pizza_types.pizza_type_id = pizzas.pizza_type_id
        JOIN
    orders_details ON orders_details.pizza_id = pizzas.pizza_id
GROUP BY pizza_types.name
ORDER BY qty DESC
LIMIT 5;
```

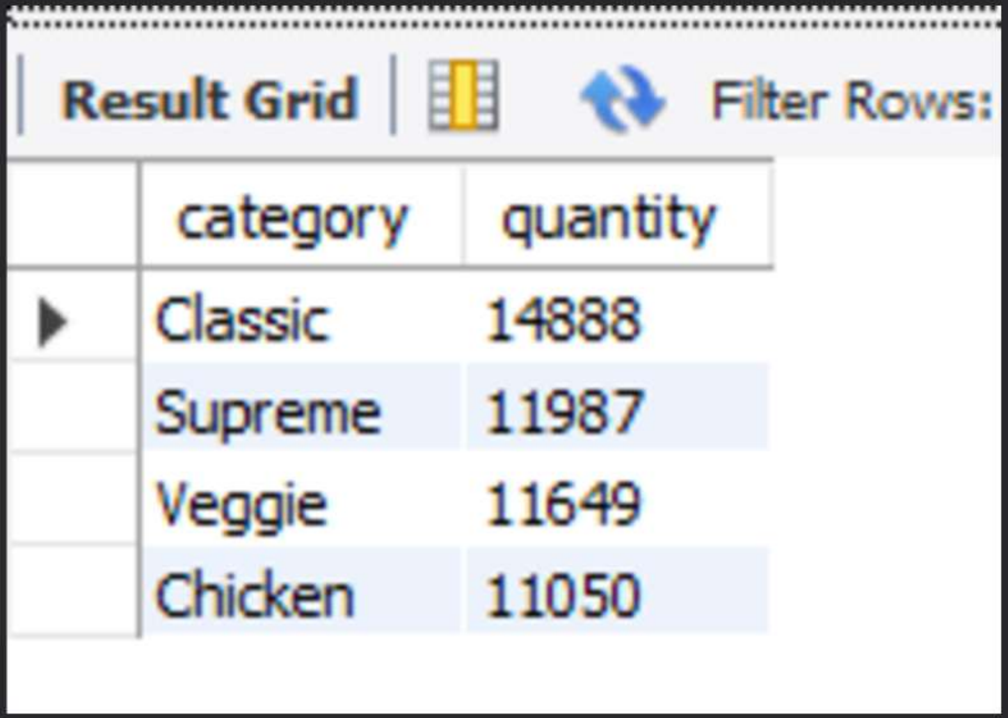


name	qty
The Classic Deluxe Pizza	2453
The Barbecue Chicken Pizza	2432
The Hawaiian Pizza	2422
The Pepperoni Pizza	2418
The Thai Chicken Pizza	2371

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

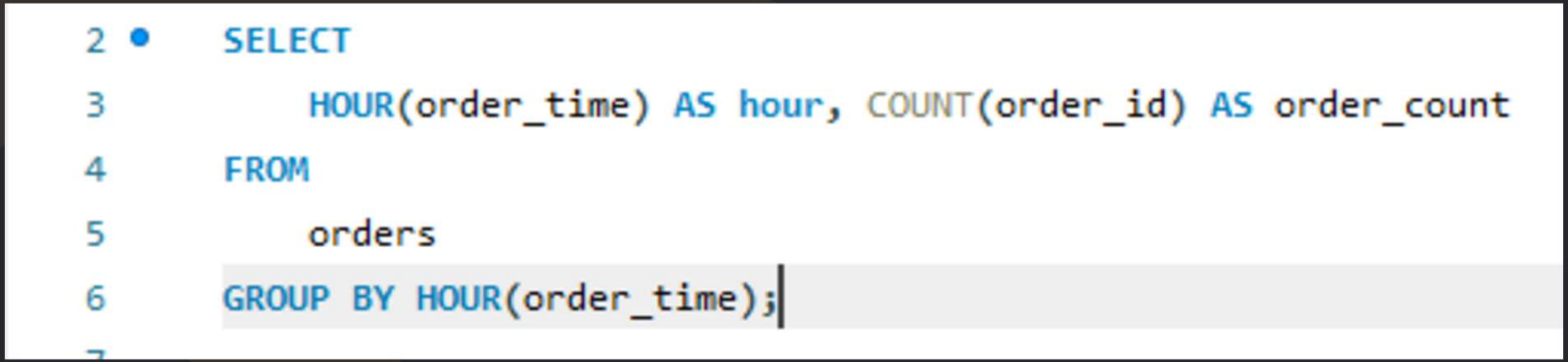


```
SELECT
    pizza_types.category,
    SUM(orders_details.quantity) AS quantity
FROM
    pizza_types
        JOIN
    pizzas ON pizza_types.pizza_type_id = pizzas.pizza_type_id
        JOIN
    orders_details ON orders_details.pizza_id = pizzas.pizza_id
GROUP BY pizza_types.category
ORDER BY quantity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

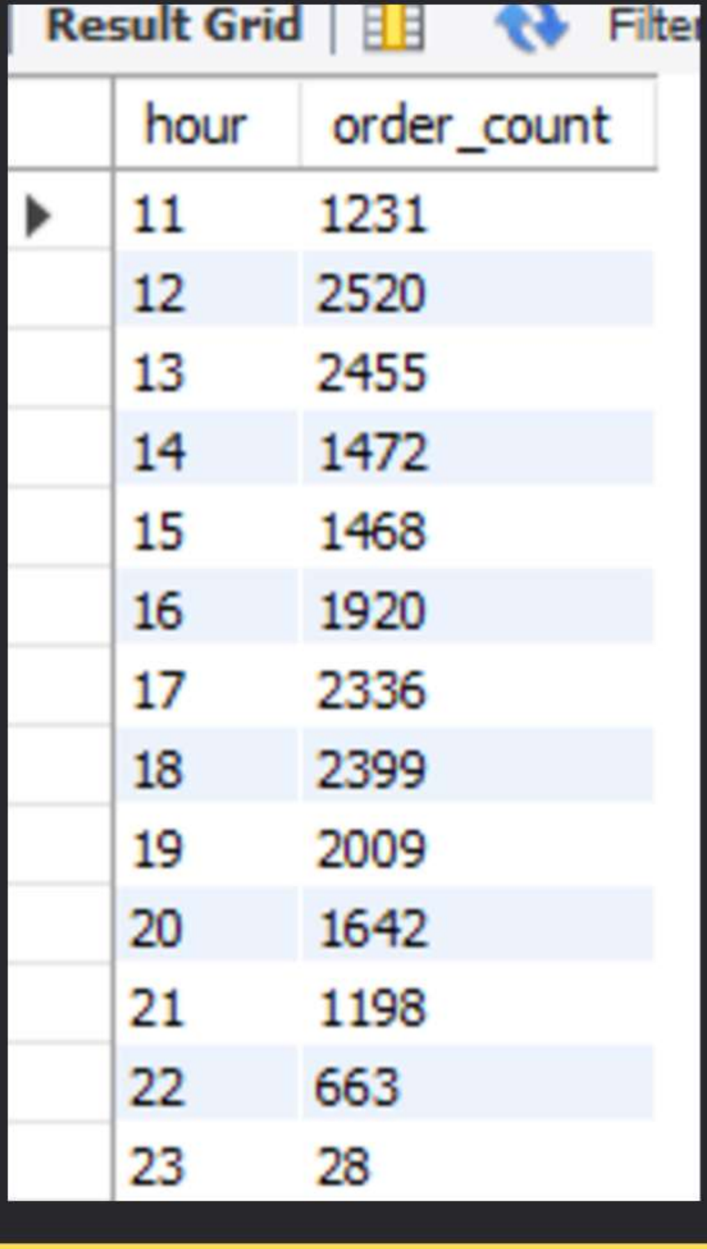


category	quantity
Classic	14888
Supreme	11987
Veggie	11649
Chicken	11050

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

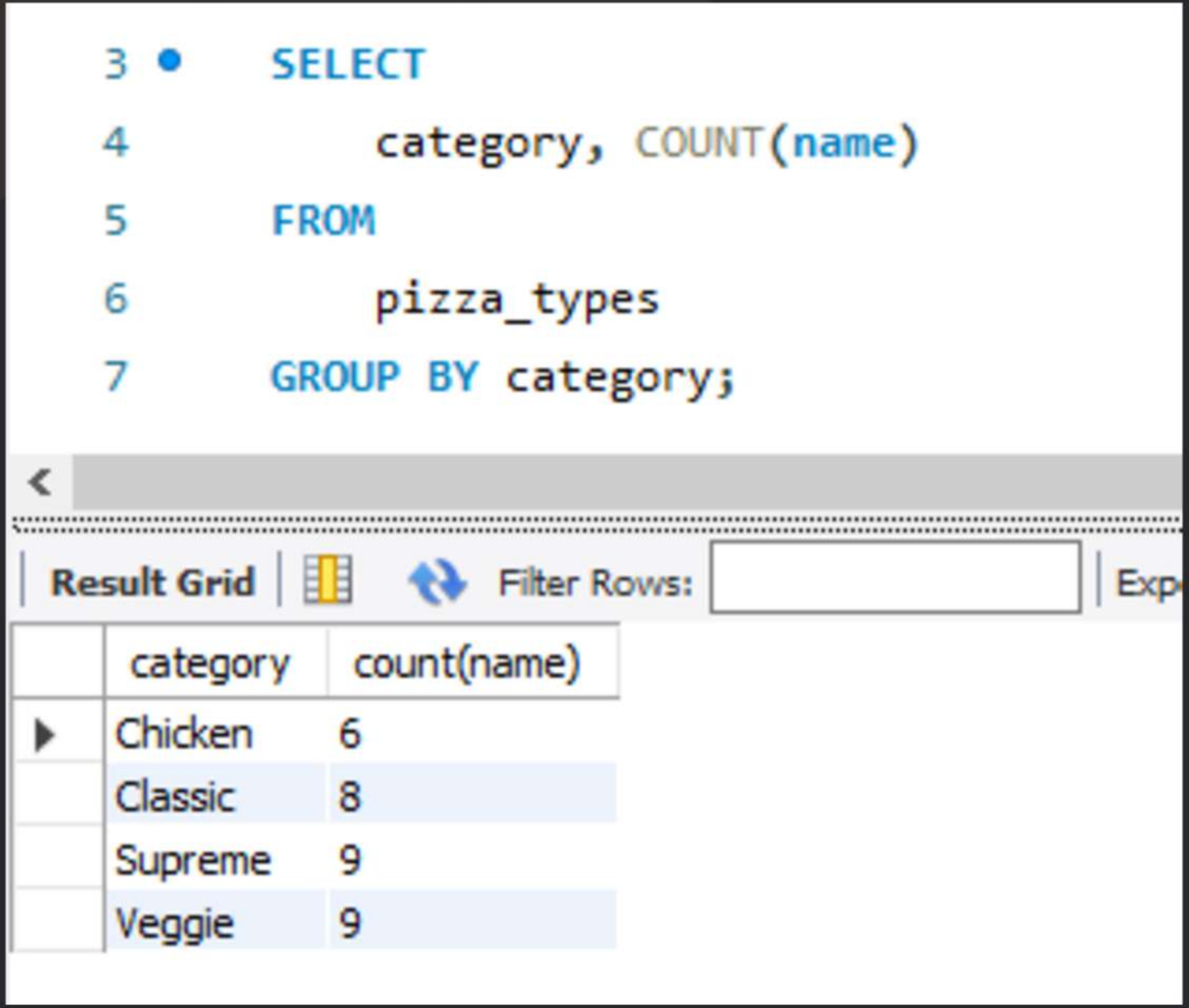


```
SELECT
    HOUR(order_time) AS hour, COUNT(order_id) AS order_count
FROM
    orders
GROUP BY HOUR(order_time);
```



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

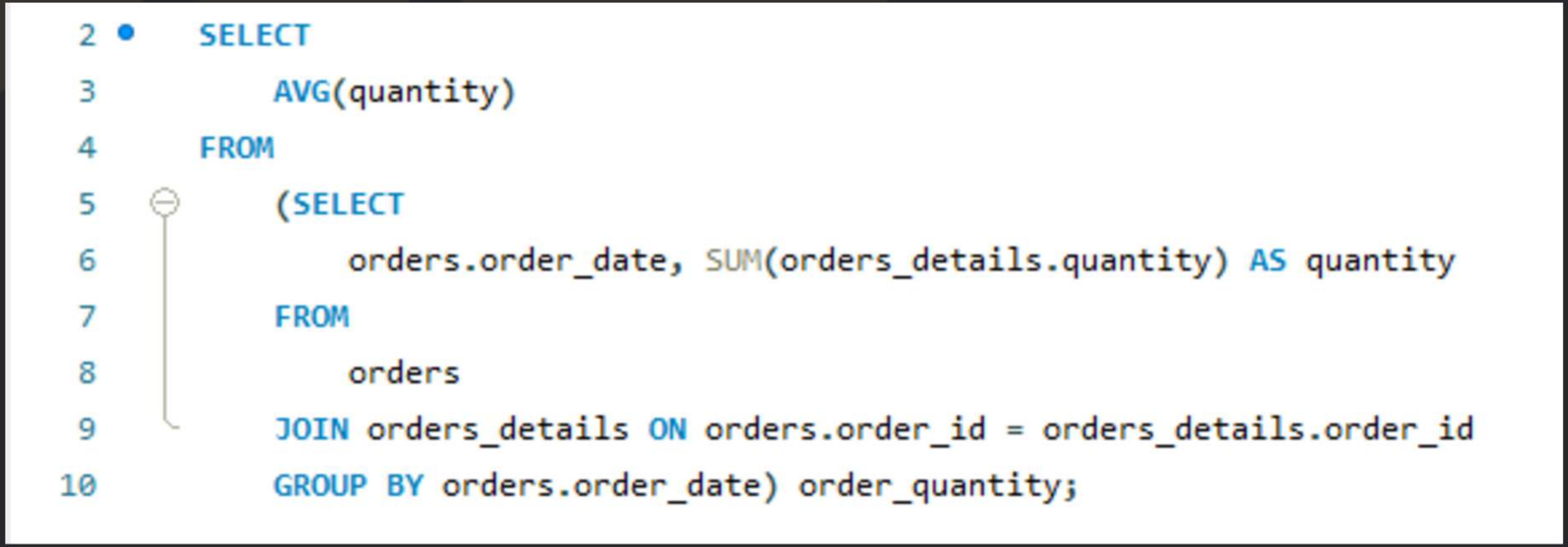
8. Join relevant tables to find the category-wise distribution of pizzas.



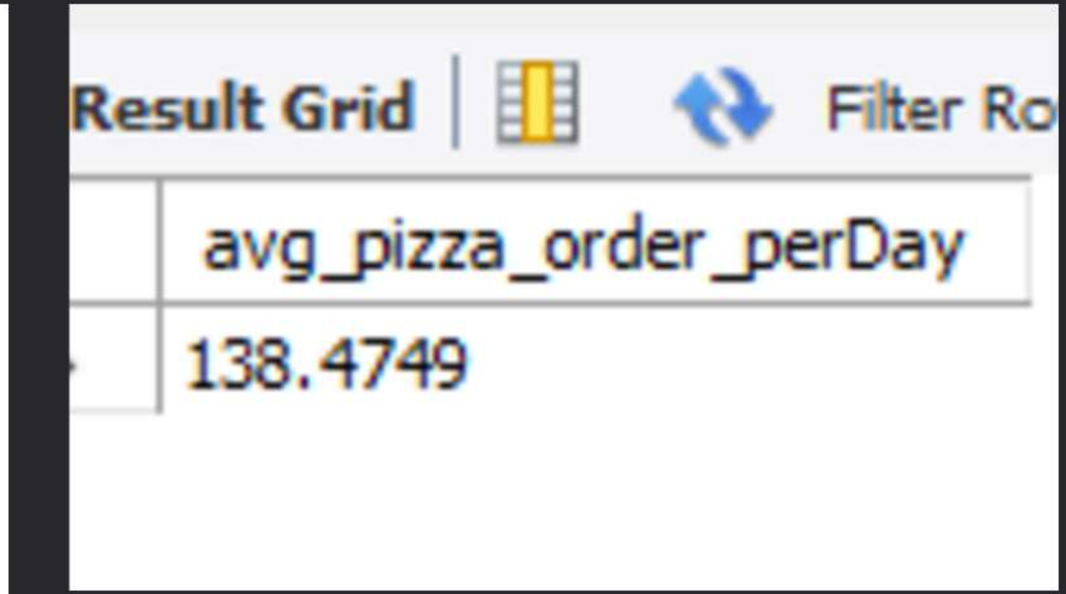
```sql
SELECT
    category, COUNT(name)
FROM
    pizza_types
GROUP BY category;
```

```
category   count(name)
Chicken    6
Classic    8
Supreme    9
Veggie     9
```

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

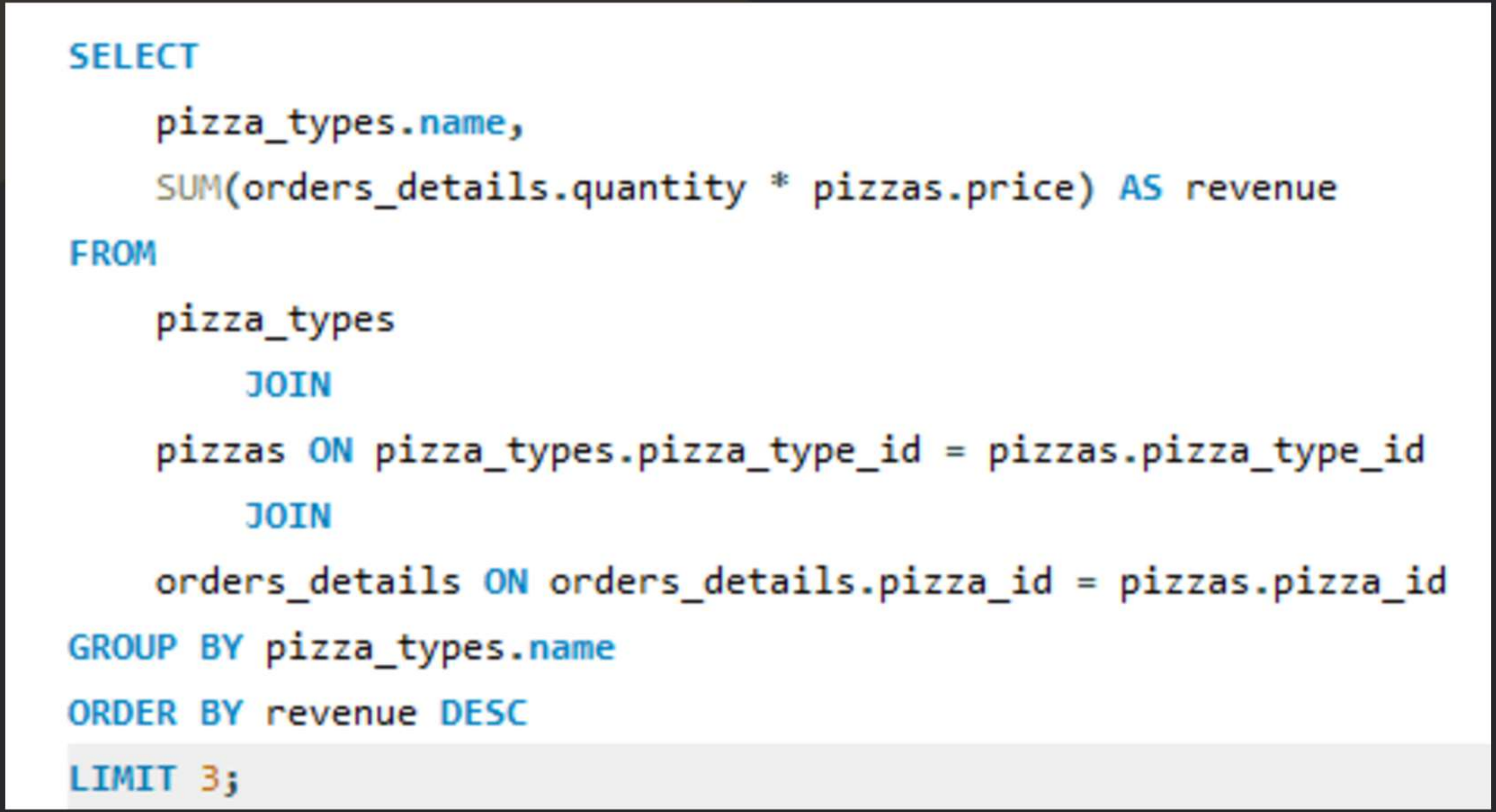


```
SELECT
    AVG(quantity)
FROM
    (SELECT
        orders.order_date, SUM(orders_details.quantity) AS quantity
    FROM
        orders
    JOIN orders_details ON orders.order_id = orders_details.order_id
    GROUP BY orders.order_date) order_quantity;
```

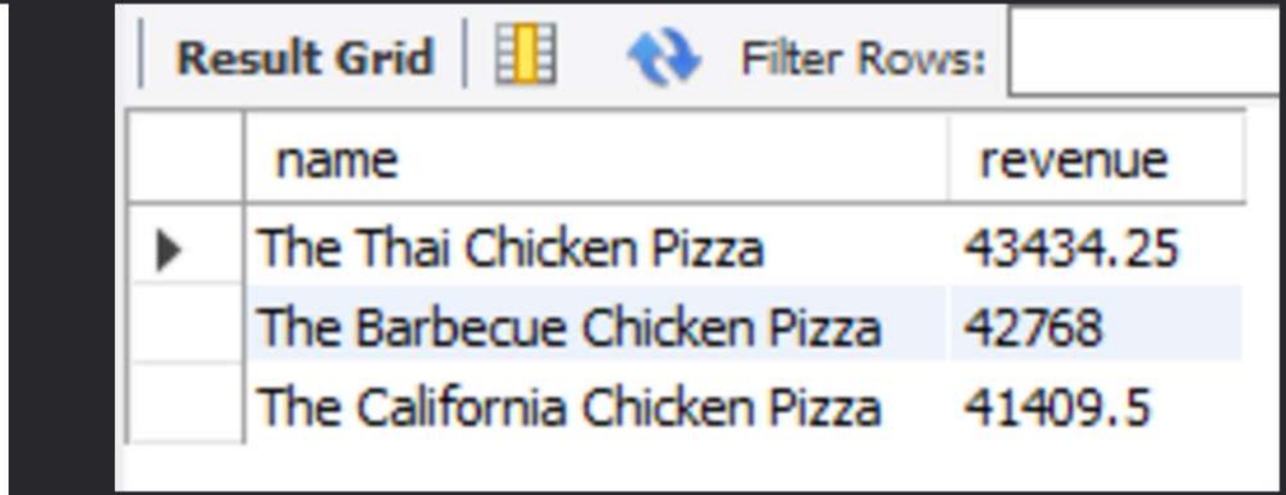


```
avg_pizza_order_perDay
138.4749
```

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

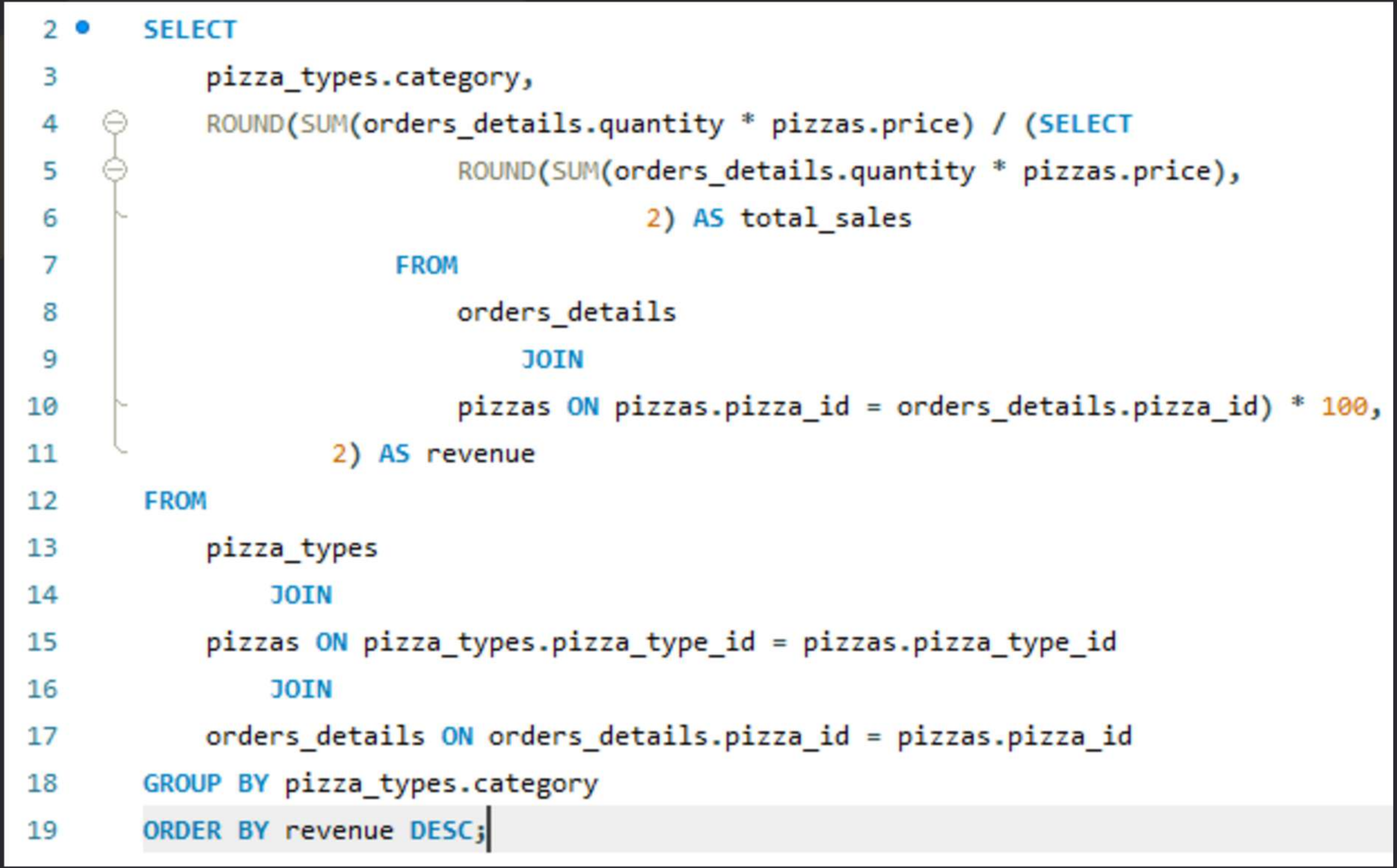


```
SELECT
    pizza_types.name,
    SUM(orders_details.quantity * pizzas.price) AS revenue
FROM
    pizza_types
        JOIN
    pizzas ON pizza_types.pizza_type_id = pizzas.pizza_type_id
        JOIN
    orders_details ON orders_details.pizza_id = pizzas.pizza_id
GROUP BY pizza_types.name
ORDER BY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

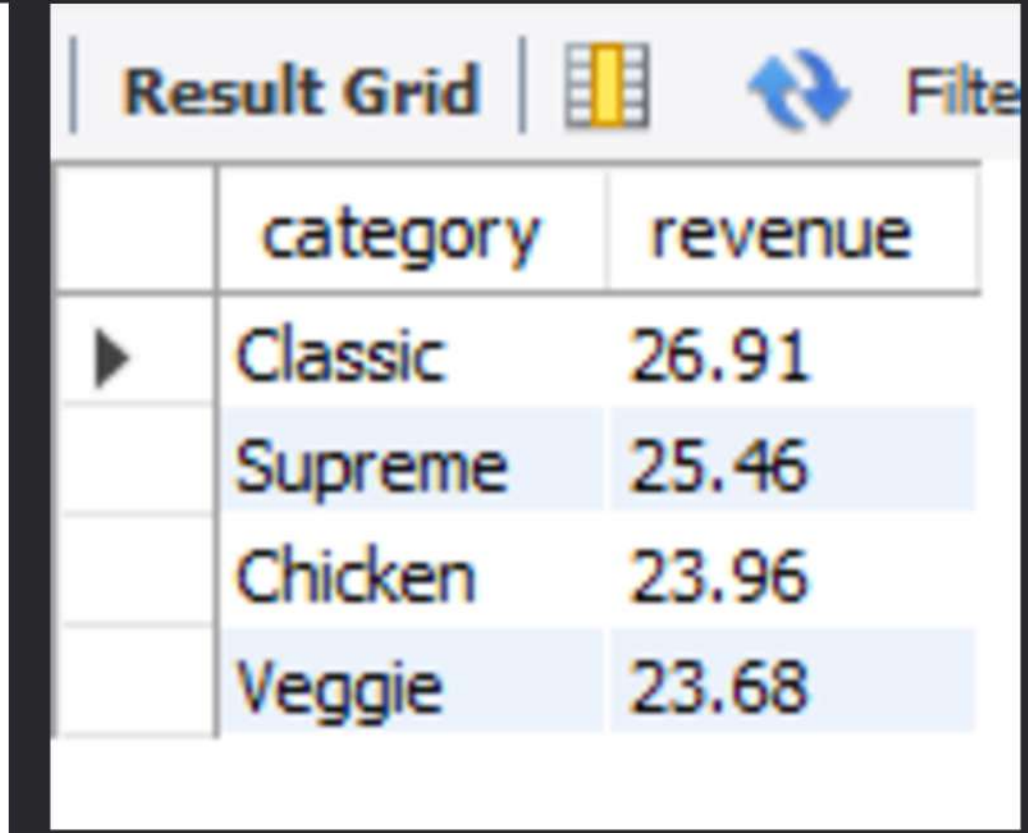


name	revenue
The Thai Chicken Pizza	43434.25
The Barbecue Chicken Pizza	42768
The California Chicken Pizza	41409.5

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

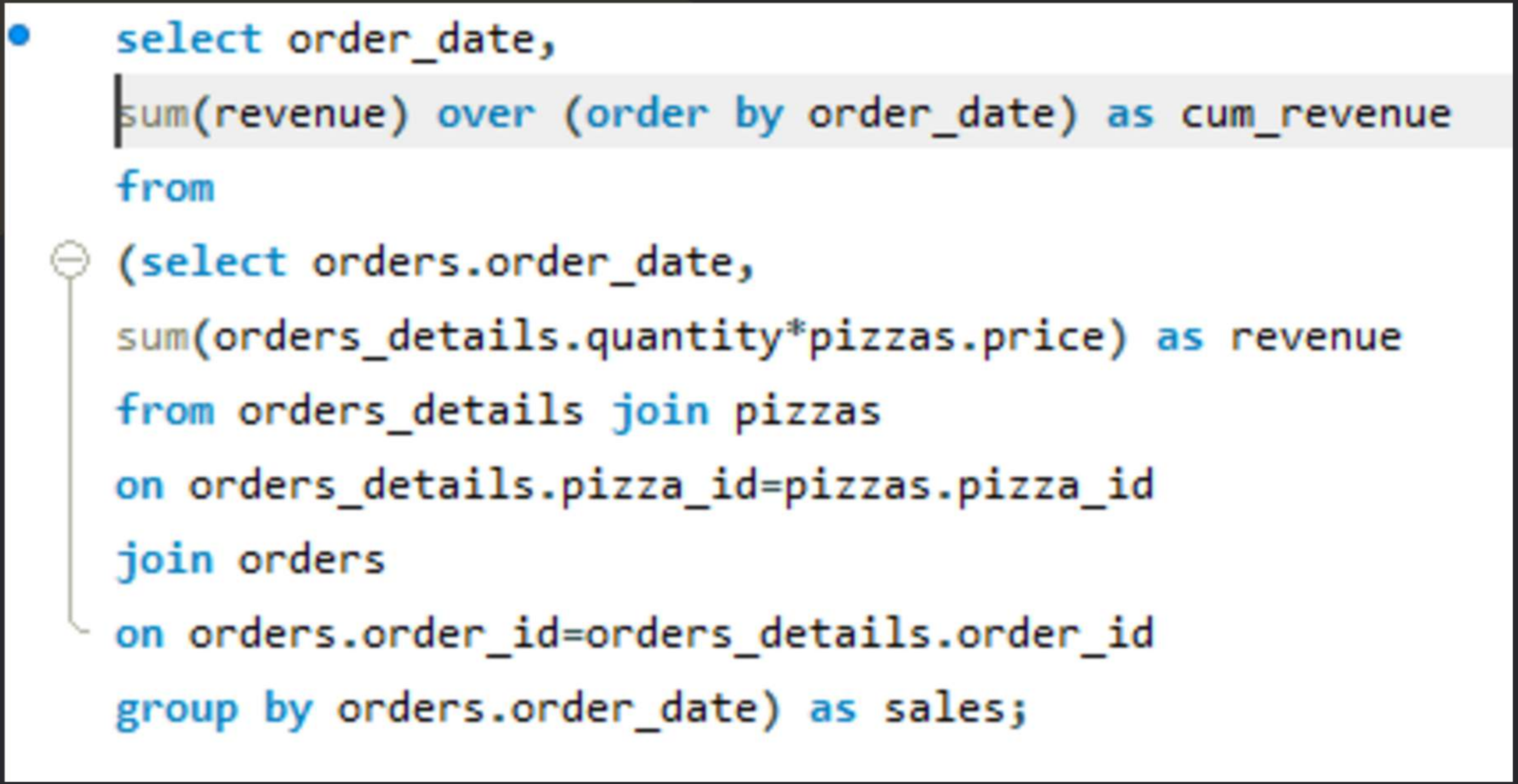


```sql
SELECT
    pizza_types.category,
    ROUND(SUM(orders_details.quantity * pizzas.price) / (SELECT
                    ROUND(SUM(orders_details.quantity * pizzas.price),
                                2) AS total_sales
                FROM
                    orders_details
                   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

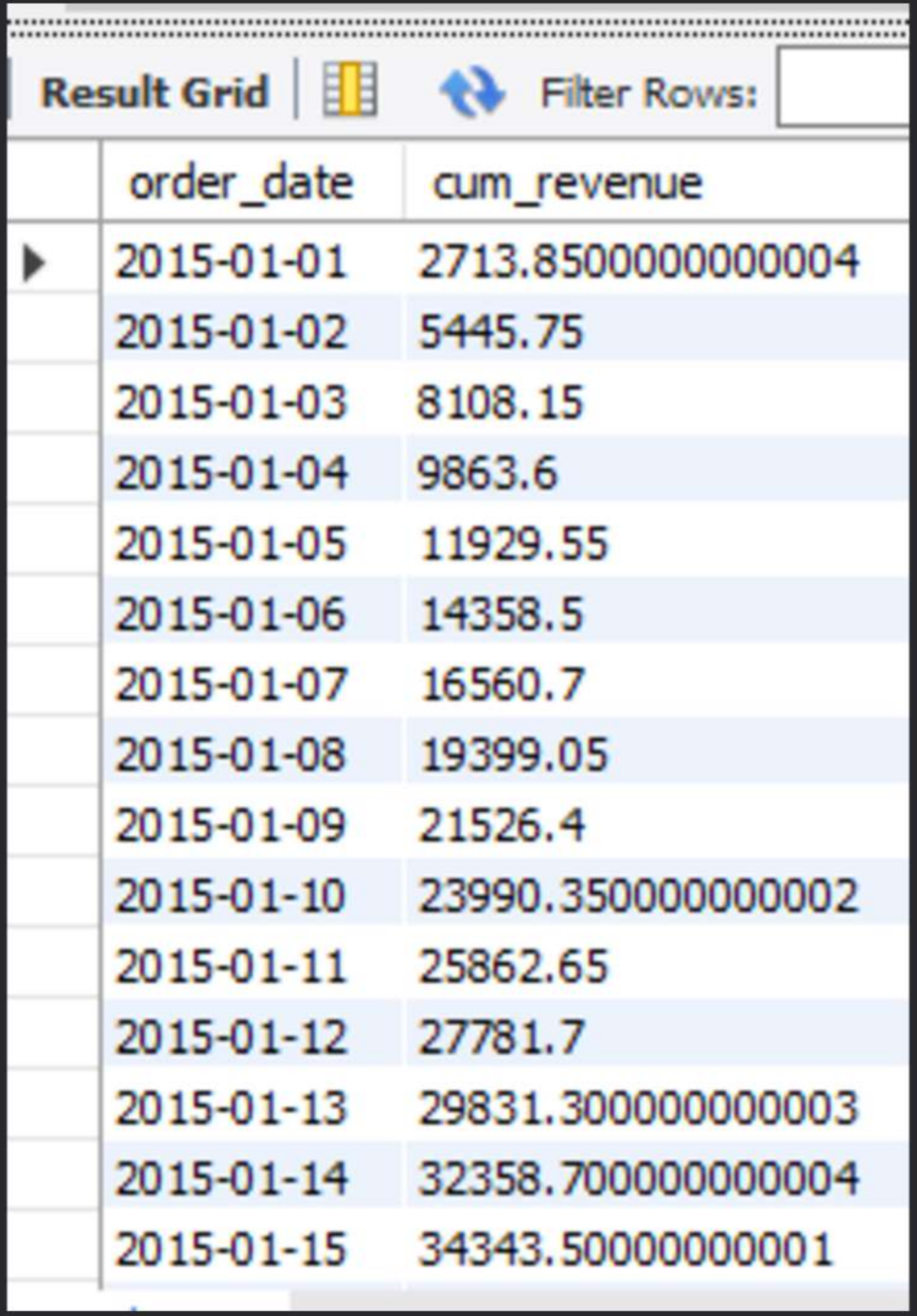


category	revenue
Classic	26.91
Supreme	25.46
Chicken	23.96
Veggie	23.68

12.Analyze the cumulative revenue generated over time.

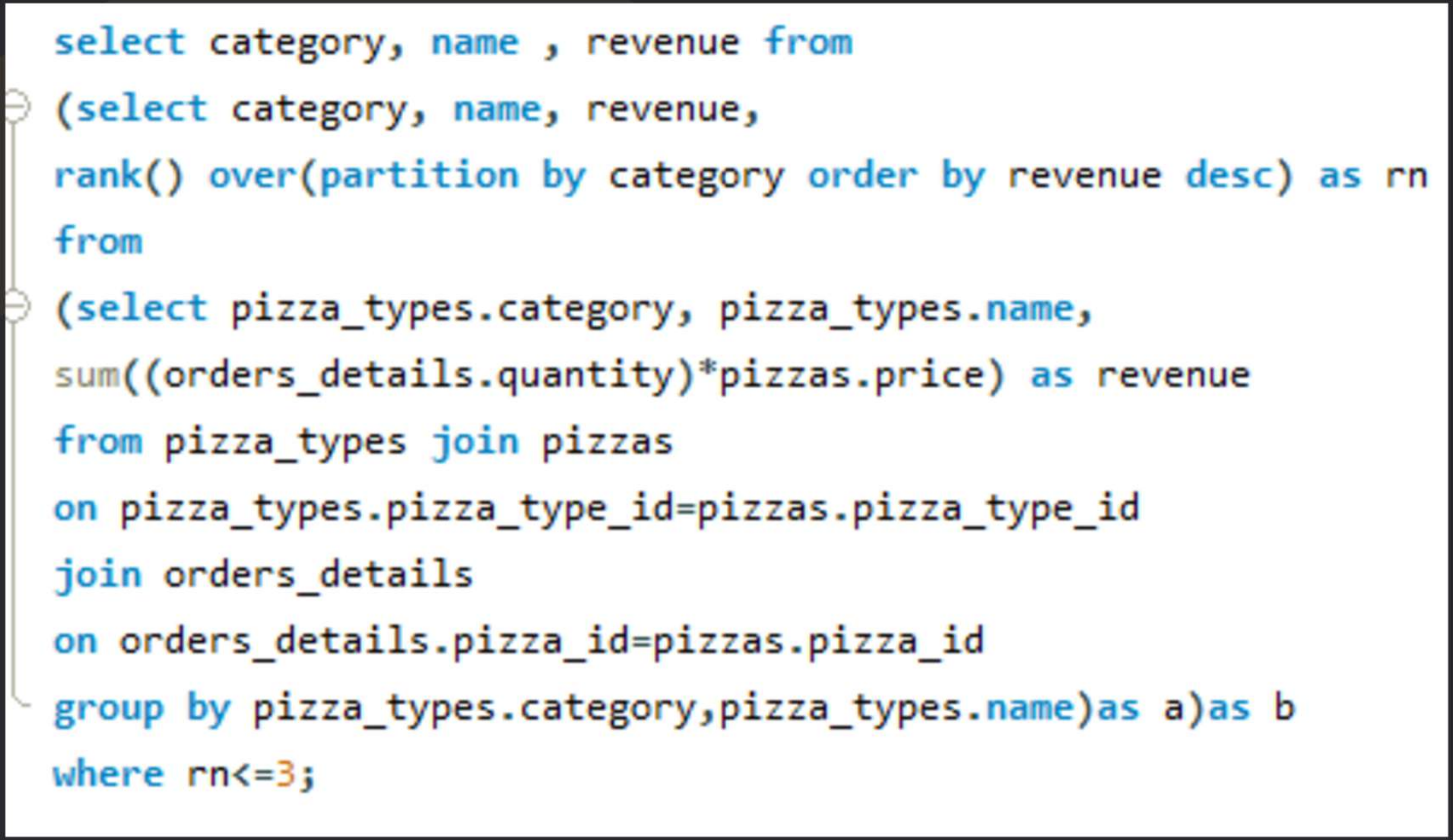


```sql
select order_date,
sum(revenue) over (order by order_date) as cum_revenue
from
(select orders.order_date,
sum(orders_details.quantity*pizzas.price) as revenue
from orders_details join pizzas
on orders_details.pizza_id=pizzas.pizza_id
join orders
on orders.order_id=orders_details.order_id
group by orders.order_date) as sales;
```

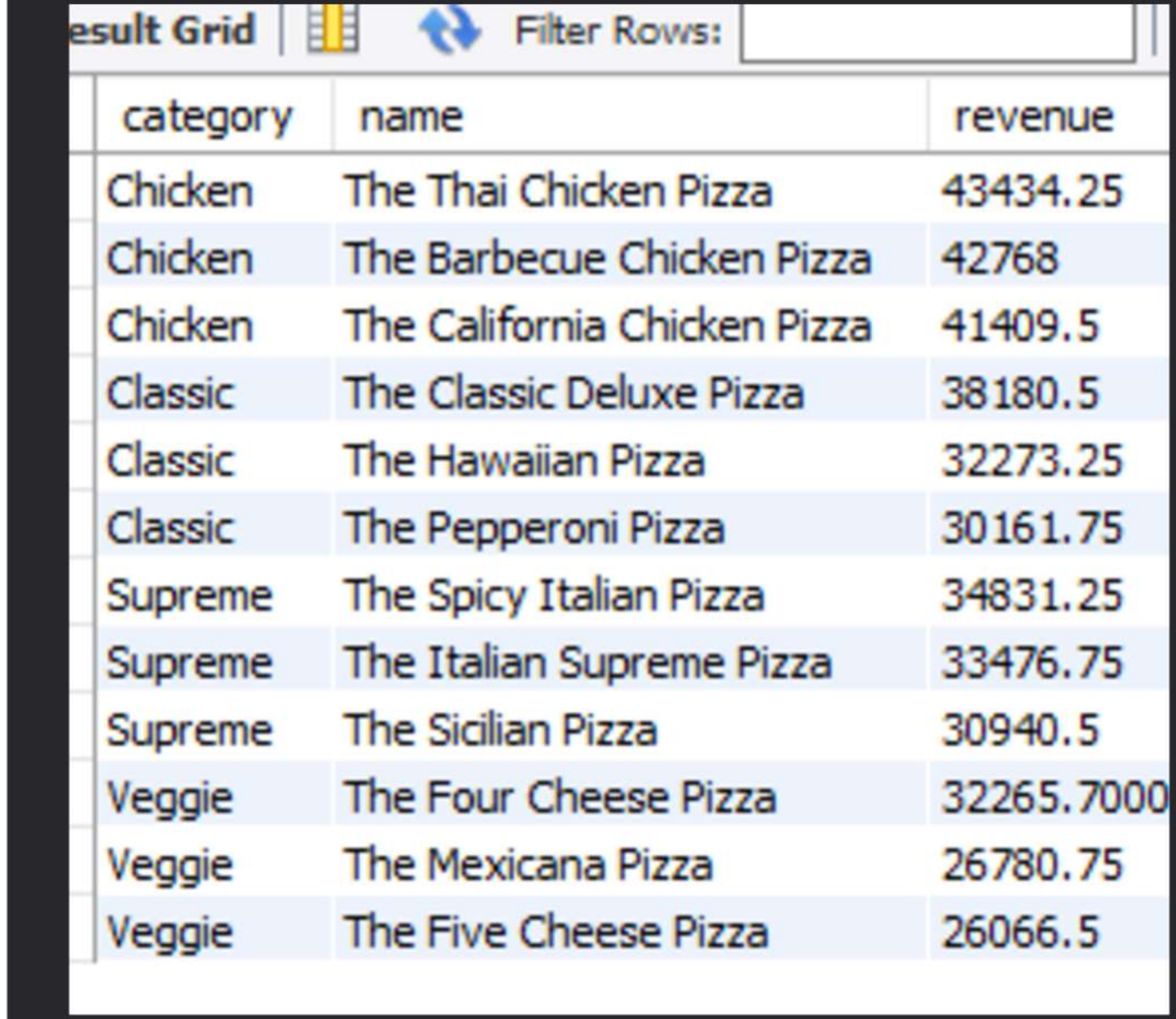


order_date	cum_revenue
2015-01-01	2713.8500000000004
2015-01-02	5445.75
2015-01-03	8108.15
2015-01-04	9863.6
2015-01-05	11929.55
2015-01-06	14358.5
2015-01-07	16560.7
2015-01-08	19399.05
2015-01-09	21526.4
2015-01-10	23990.350000000002
2015-01-11	25862.65
2015-01-12	27781.7
2015-01-13	29831.300000000003
2015-01-14	32358.700000000004
2015-01-15	34343.50000000001

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



```
select category, 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((orders_details.quantity)*pizzas.price) as revenue
from pizza_types join pizzas
on pizza_types.pizza_type_id=pizzas.pizza_type_id
join orders_details
on orders_details.pizza_id=pizzas.pizza_id
group by pizza_types.category,pizza_types.name)as a)as b
where rn<=3;
```



category	name	revenue
Chicken	The Thai Chicken Pizza	43434.25
Chicken	The Barbecue Chicken Pizza	42768
Chicken	The California Chicken Pizza	41409.5
Classic	The Classic Deluxe Pizza	38180.5
Classic	The Hawaiian Pizza	32273.25
Classic	The Pepperoni Pizza	30161.75
Supreme	The Spicy Italian Pizza	34831.25
Supreme	The Italian Supreme Pizza	33476.75
Supreme	The Sicilian Pizza	30940.5
Veggie	The Four Cheese Pizza	32265.7000
Veggie	The Mexicana Pizza	26780.75
Veggie	The Five Cheese Pizza	26066.5

Overall Business Performance

- **Total Orders :** 21025
- **Total Sales :** $817860
- **5 Most Ordered Pizzas :**

  The Classic Deluxe Pizza - 2453

  The Barbecue Chicken Pizza - 2432

  The Hawaiian Pizza - 2422

  The Pepperoni Pizza - 2418

  The Thai Chicken Pizza - 2371

- **Average number of pizzas ordered per day :** 138

Thank You

LinkedIn : *https://www.linkedin.com/in/riya-bhatt-3246852b8/*

Gmail : *riyabhatt005@gmail.com*

GitHub :https://github.com/riyabhatts