Pizza Sales Analysis

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15/10/2024

Introduction

- **Objective:** To analyze pizza sales data to derive insights and improve business strategies.

- **Scope:** Data extraction, transformation, and analysis using SQL queries.

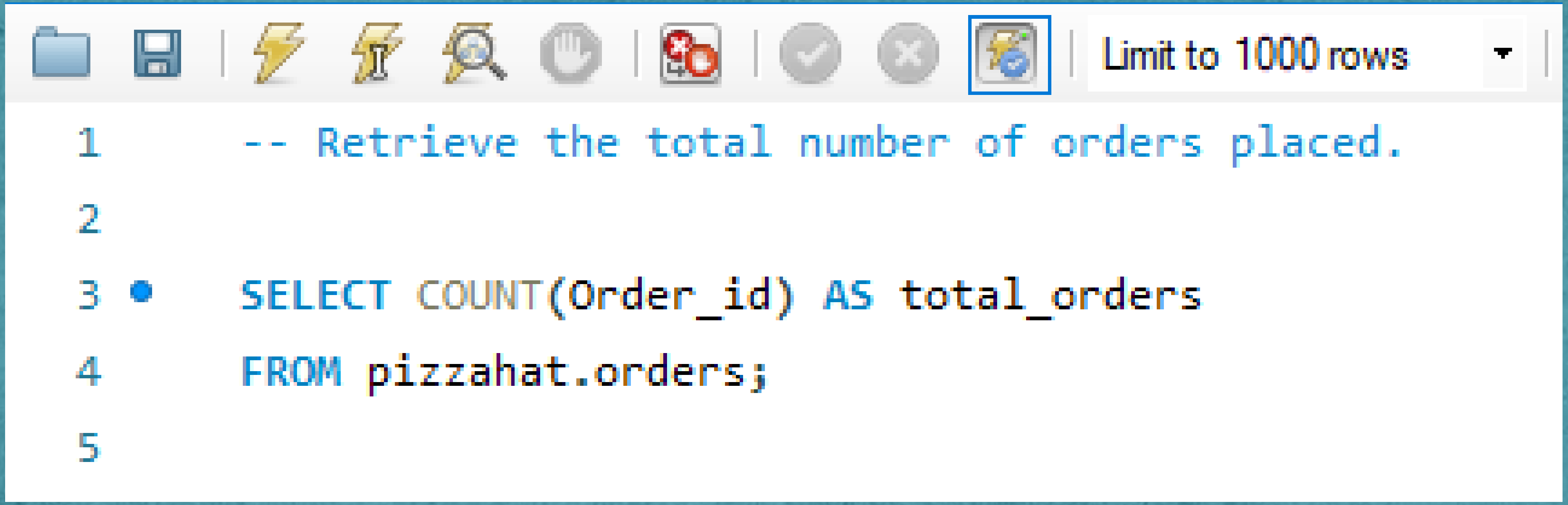
Tables Involved

- **Pizzas**: Pizza details (Pizza ID, Size, Pizza Type ID, Price).
- **Pizza Types**: Types details (Pizza Type ID, Name, Category, Ingredients).
- **Orders**: Order details (Order ID, Order Date, Order Time).
- **Order Details**: Order line items (Order Details ID, Order ID, Pizza ID, Quantity).

Data Analysis

-- Retrieve the total number of orders placed

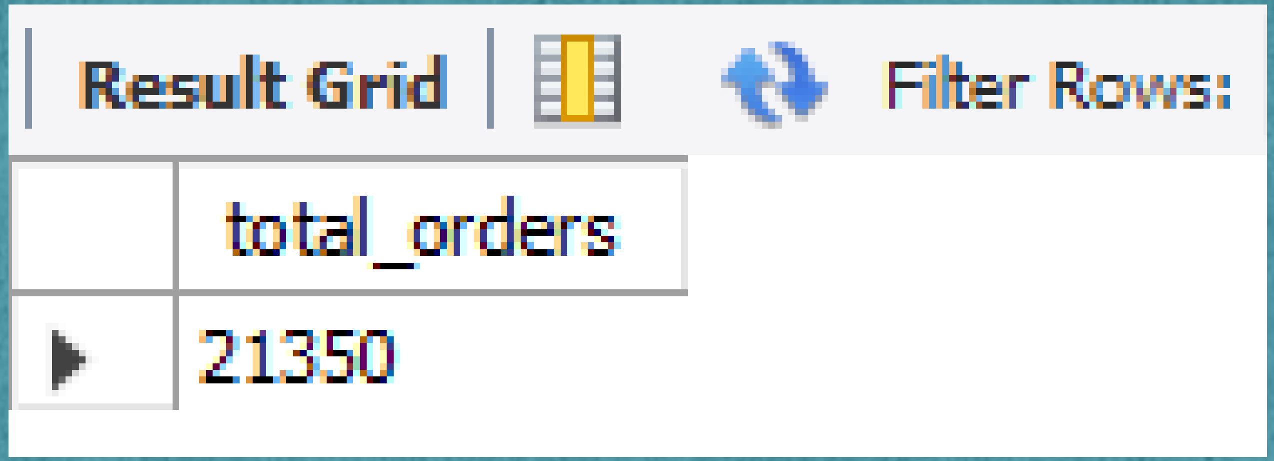
Query :



```sql
-- Retrieve the total number of orders placed.

SELECT COUNT(Order_id) AS total_orders
FROM pizzahat.orders;
```

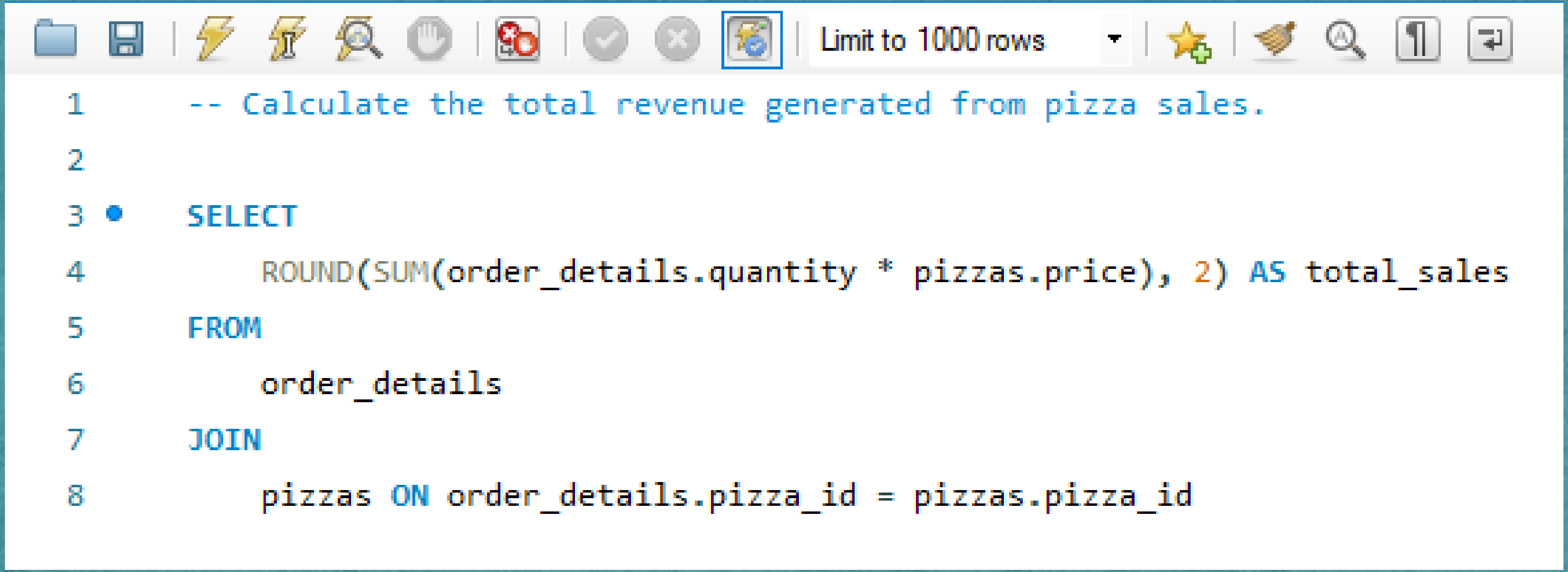
Output :



```
total_orders
21350
```

-- Calculate the total revenue generated from pizza sales.

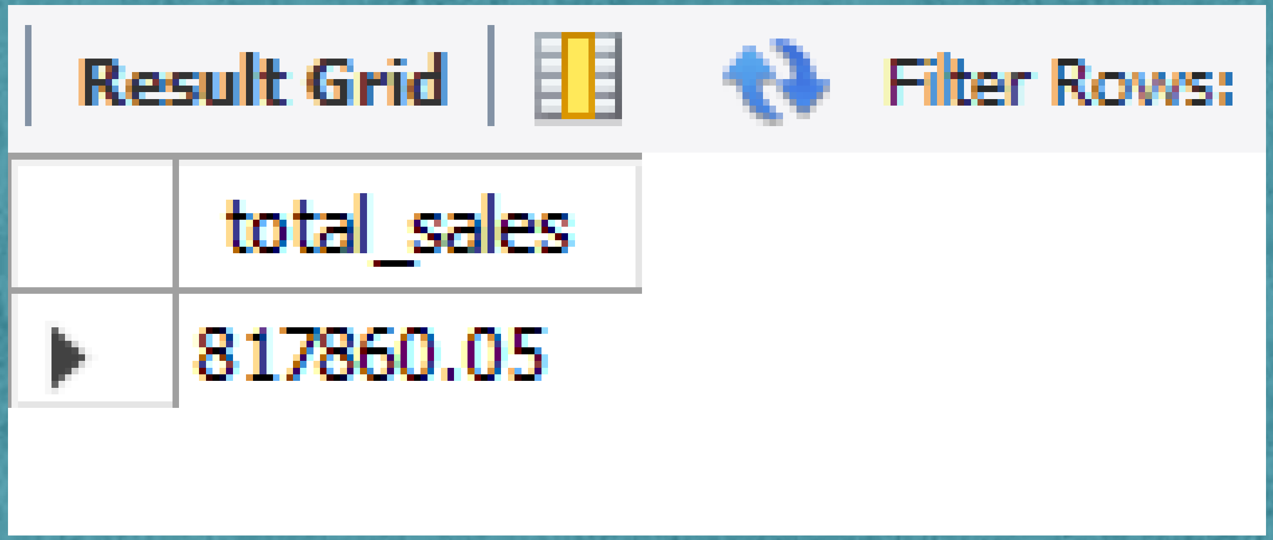
Query :



```sql
-- Calculate the total revenue generated from pizza sales.

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

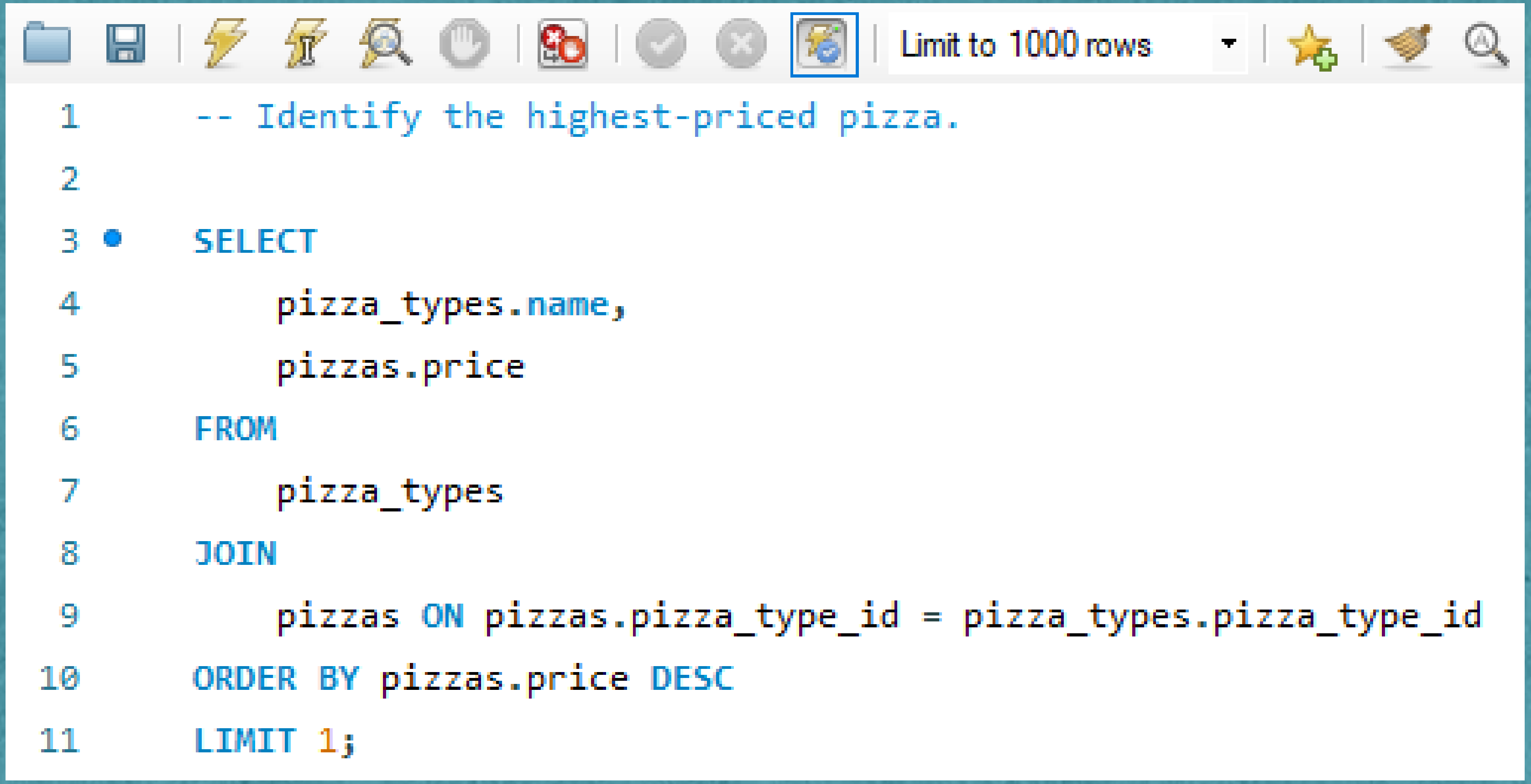
Output :



```
total_sales
817860.05
```

-- Identify the highest-priced pizza.

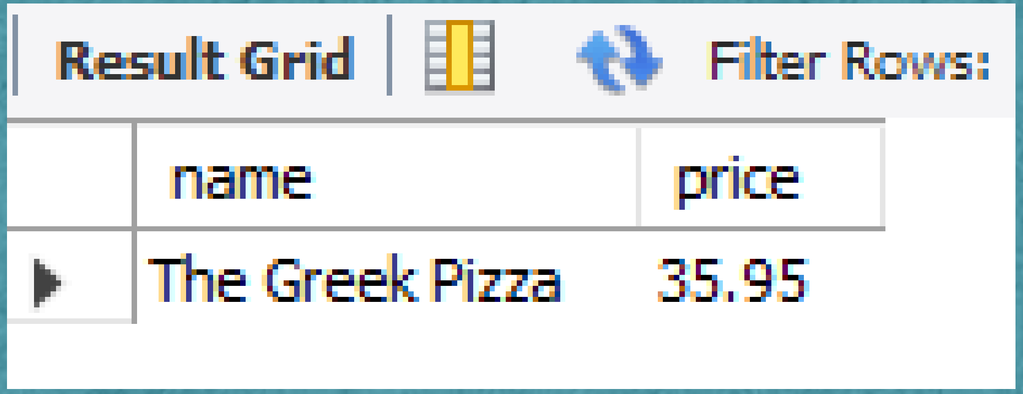
Query :



```
-- Identify the highest-priced pizza.

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

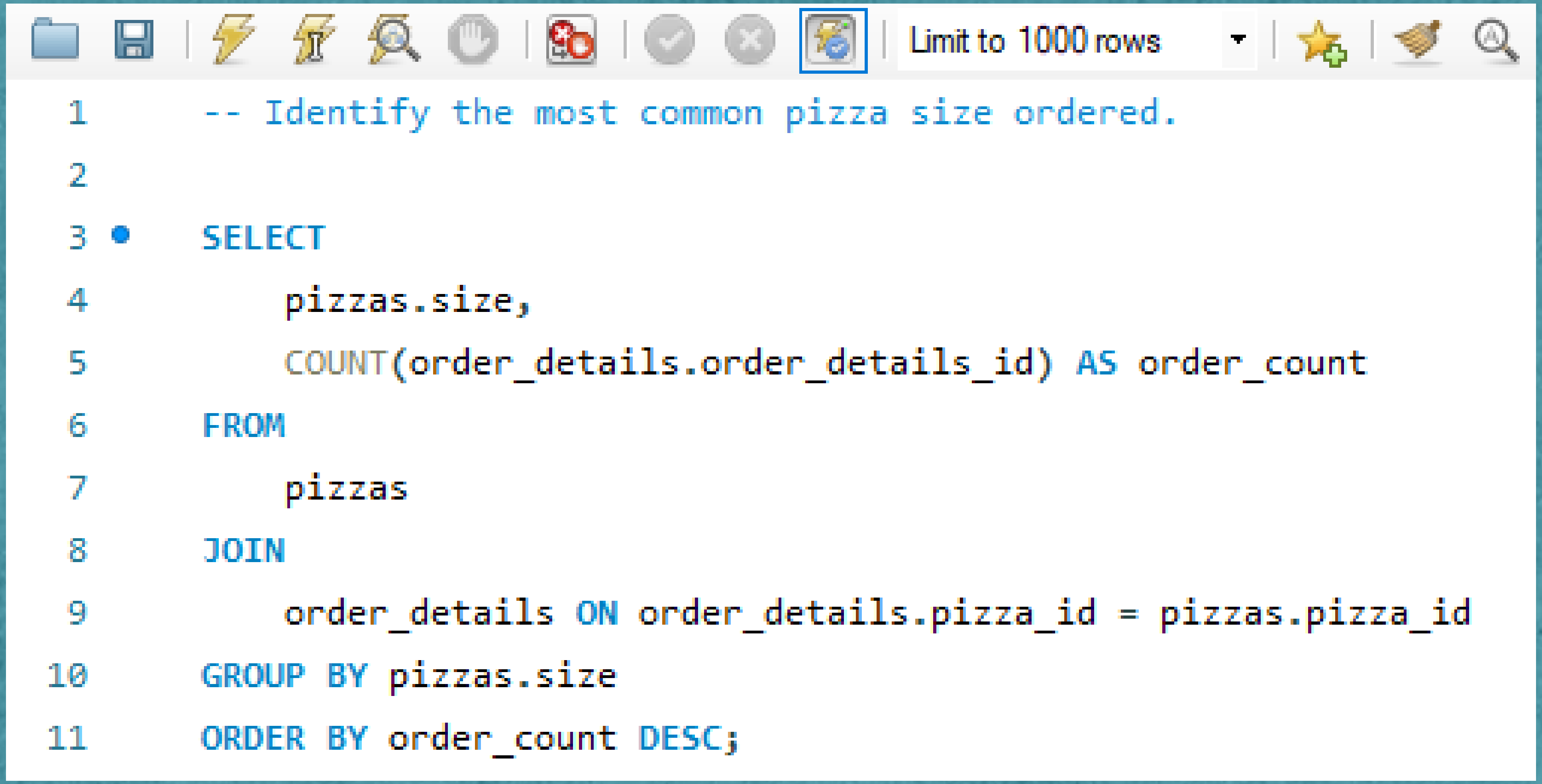
Output :



name	price
The Greek Pizza	35.95

-- Identify the most common pizza size ordered.

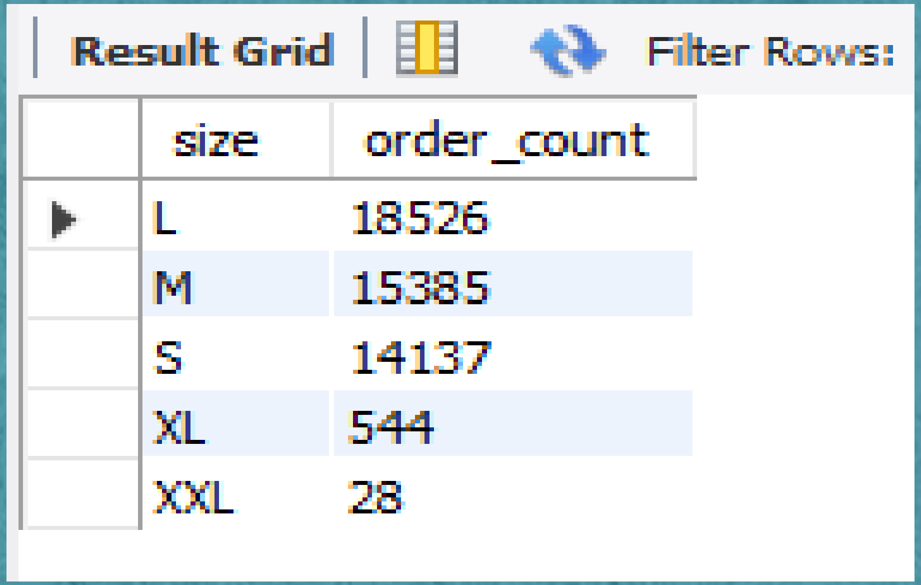
Query :



```sql
-- Identify the most common pizza size ordered.

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

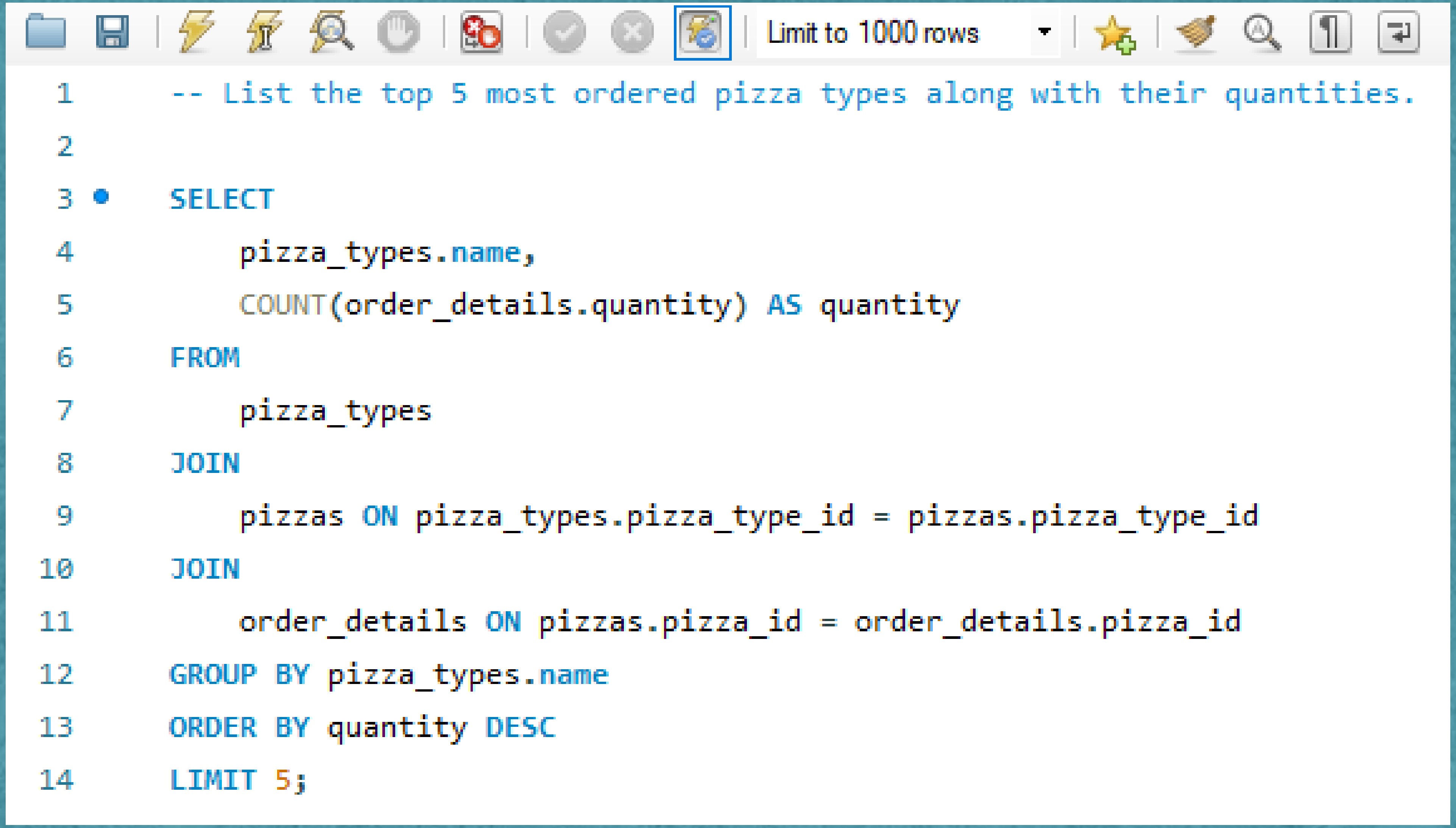
Output :



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

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

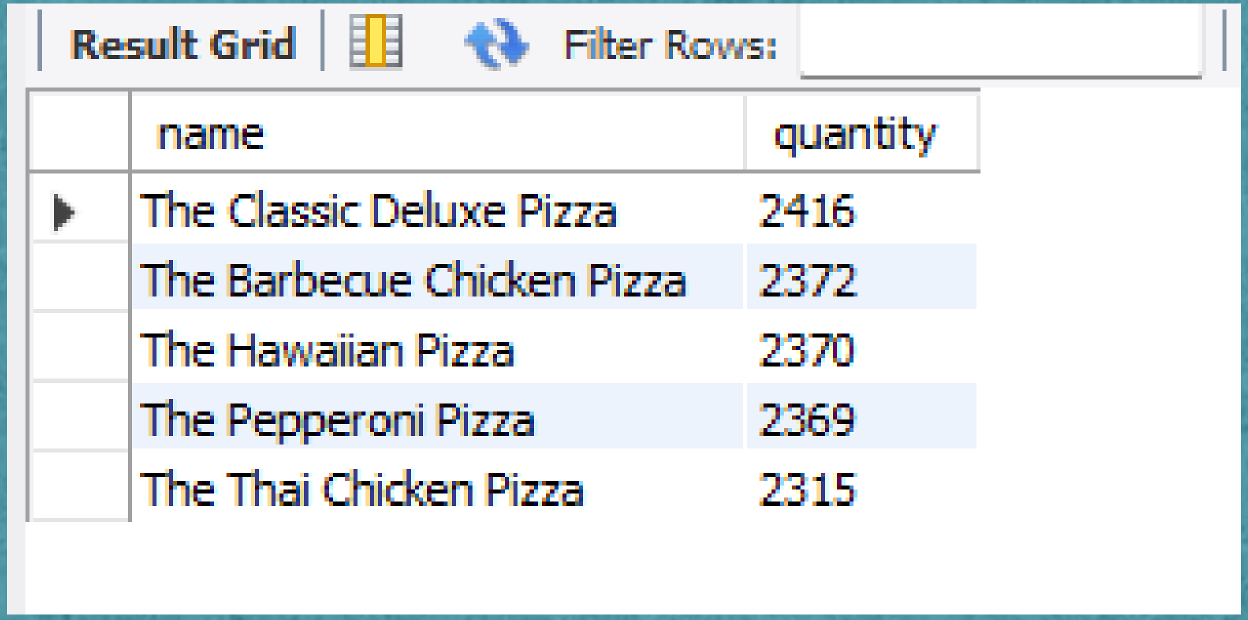
Query :



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

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

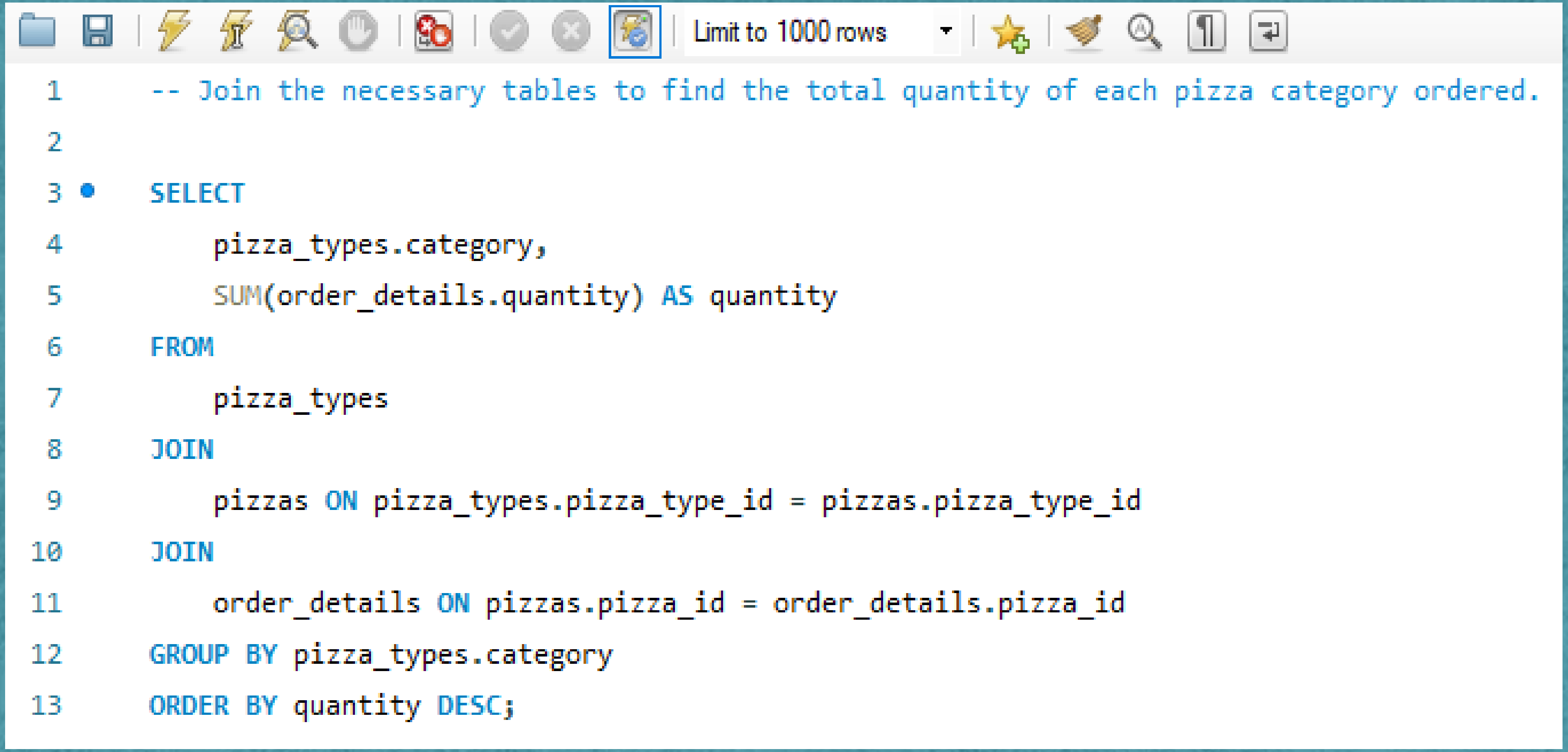
Output :



name	quantity
The Classic Deluxe Pizza	2416
The Barbecue Chicken Pizza	2372
The Hawaiian Pizza	2370
The Pepperoni Pizza	2369
The Thai Chicken Pizza	2315

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

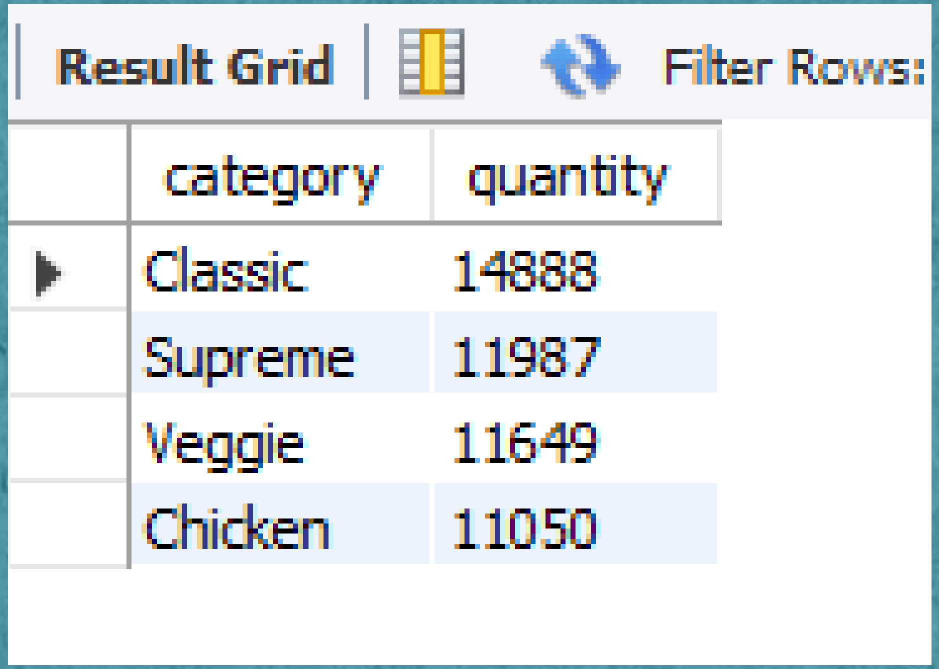
Query :



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

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 pizzas.pizza_id = order_details.pizza_id
GROUP BY pizza_types.category
ORDER BY quantity DESC;
```

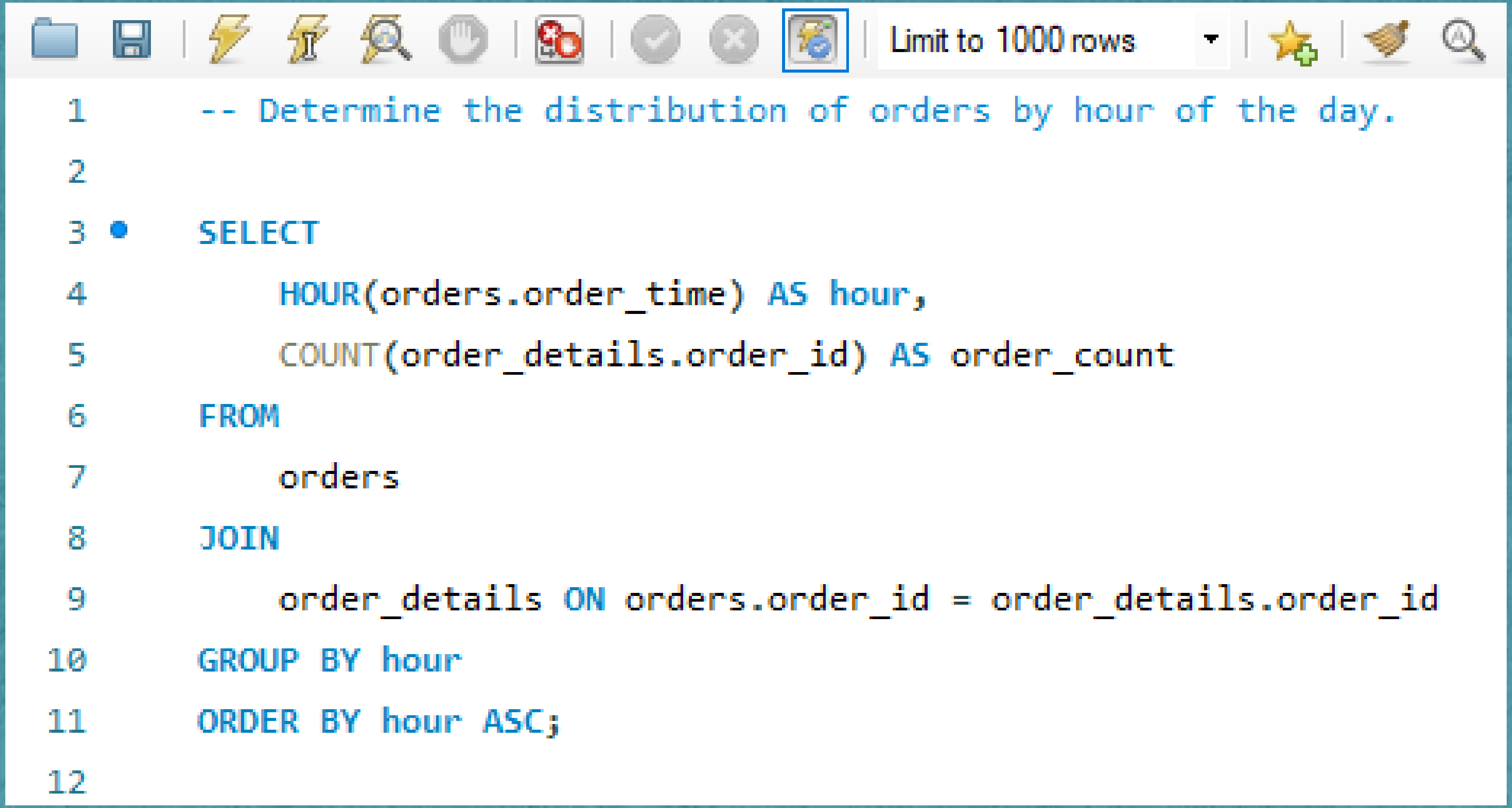
Output :



category	quantity
Classic	14888
Supreme	11987
Veggie	11649
Chicken	11050

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

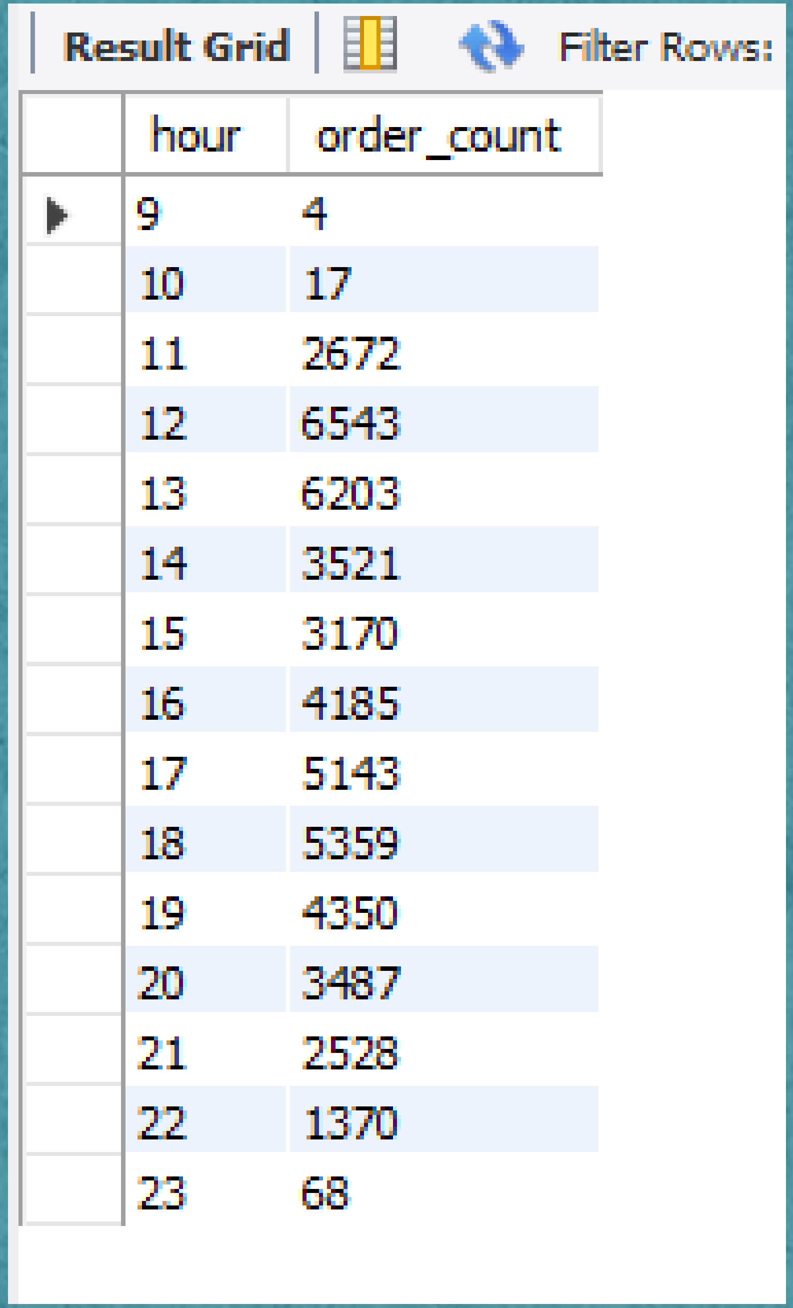
Query :


Limit to 1000 rows

```sql
-- Determine the distribution of orders by hour of the day.

SELECT
    HOUR(orders.order_time) AS hour,
    COUNT(order_details.order_id) AS order_count
FROM
    orders
JOIN
    order_details ON orders.order_id = order_details.order_id
GROUP BY hour
ORDER BY hour ASC;
```

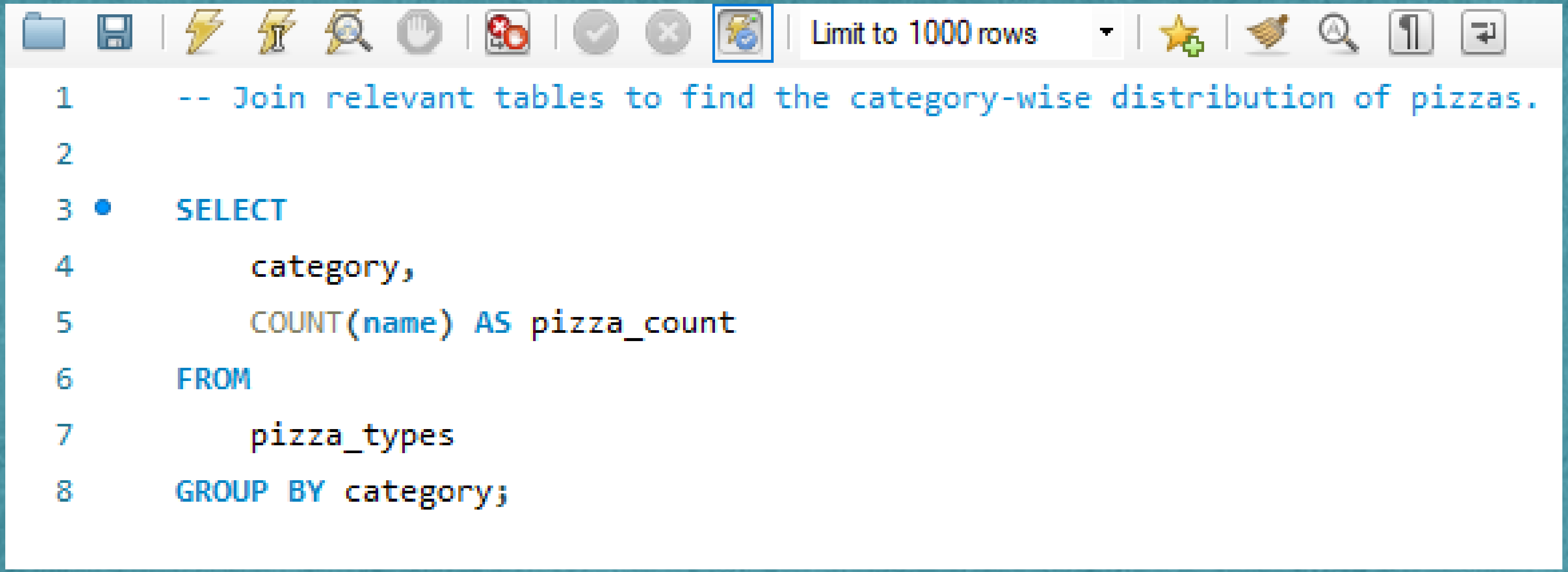
Output :



hour	order_count
9	4
10	17
11	2672
12	6543
13	6203
14	3521
15	3170
16	4185
17	5143
18	5359
19	4350
20	3487
21	2528
22	1370
23	68

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

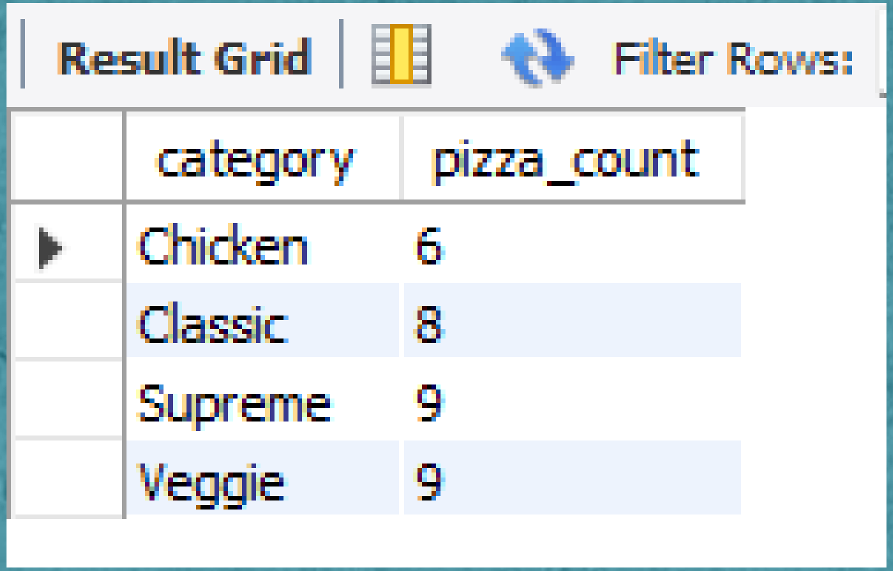
Query :



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

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

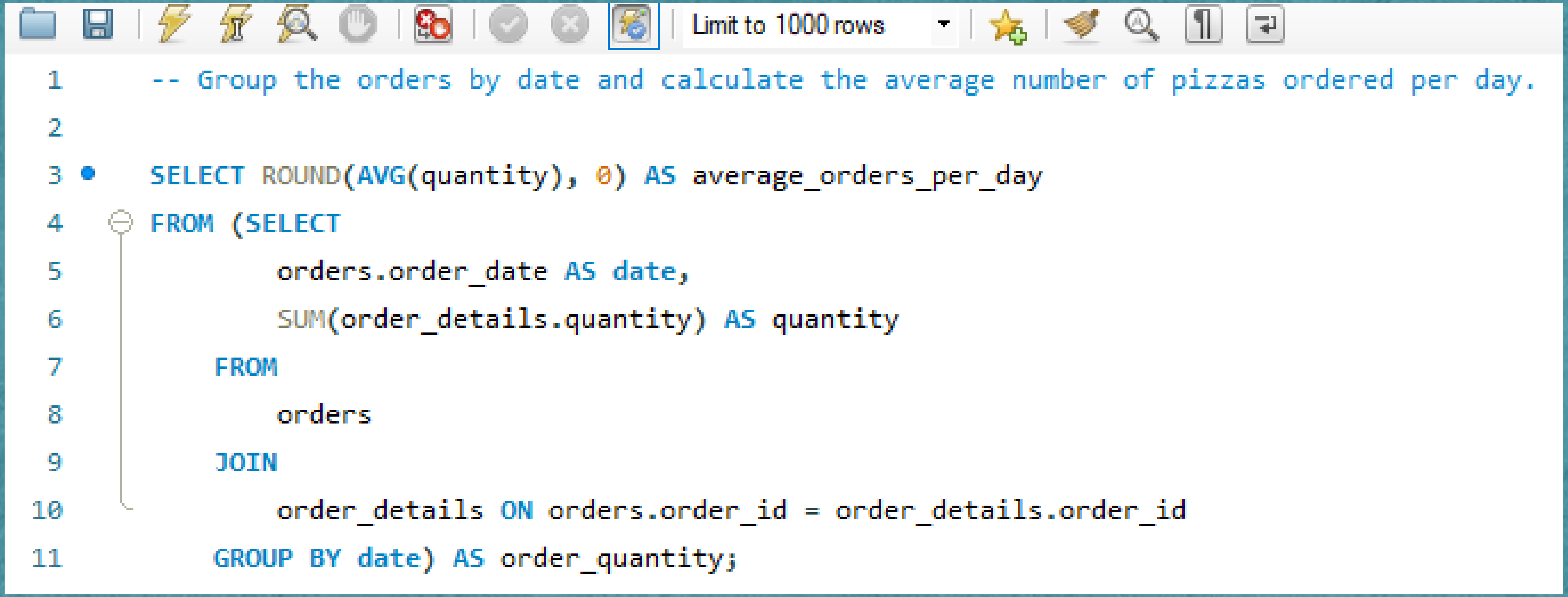
Output :



category	pizza_count
Chicken	6
Classic	8
Supreme	9
Veggie	9

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

Query :

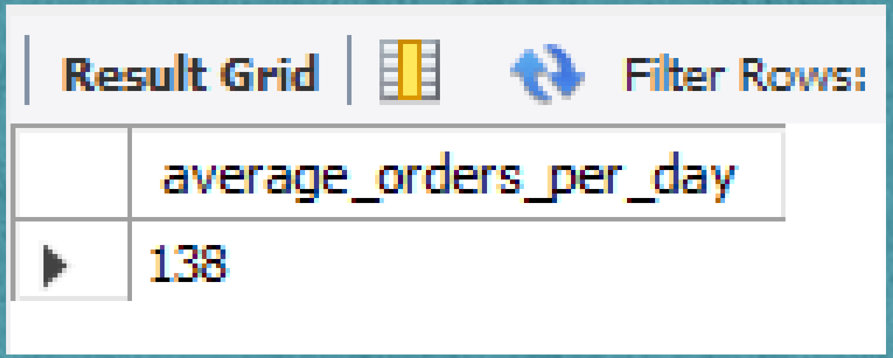


Limit to 1000 rows

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

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

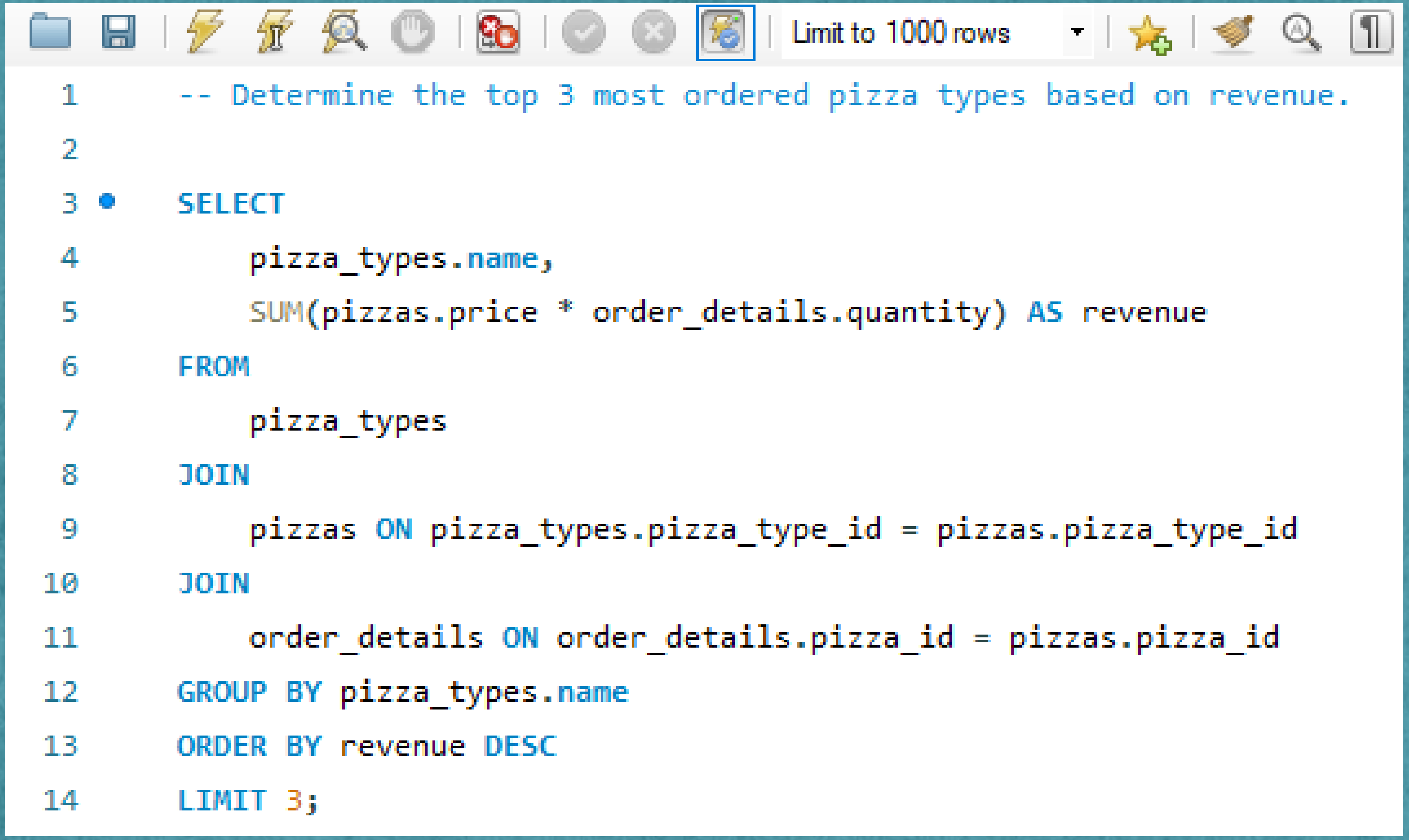
Output :



```
average_orders_per_day
138
```

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

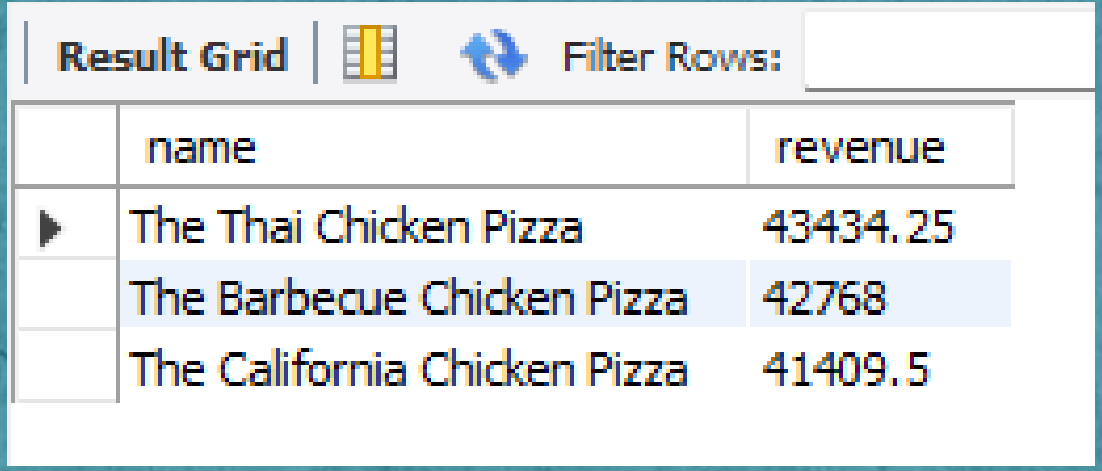
Query :



```sql
-- Determine the top 3 most ordered pizza types based on revenue.

SELECT
    pizza_types.name,
    SUM(pizzas.price * order_details.quantity) 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.name
ORDER BY revenue DESC
LIMIT 3;
```

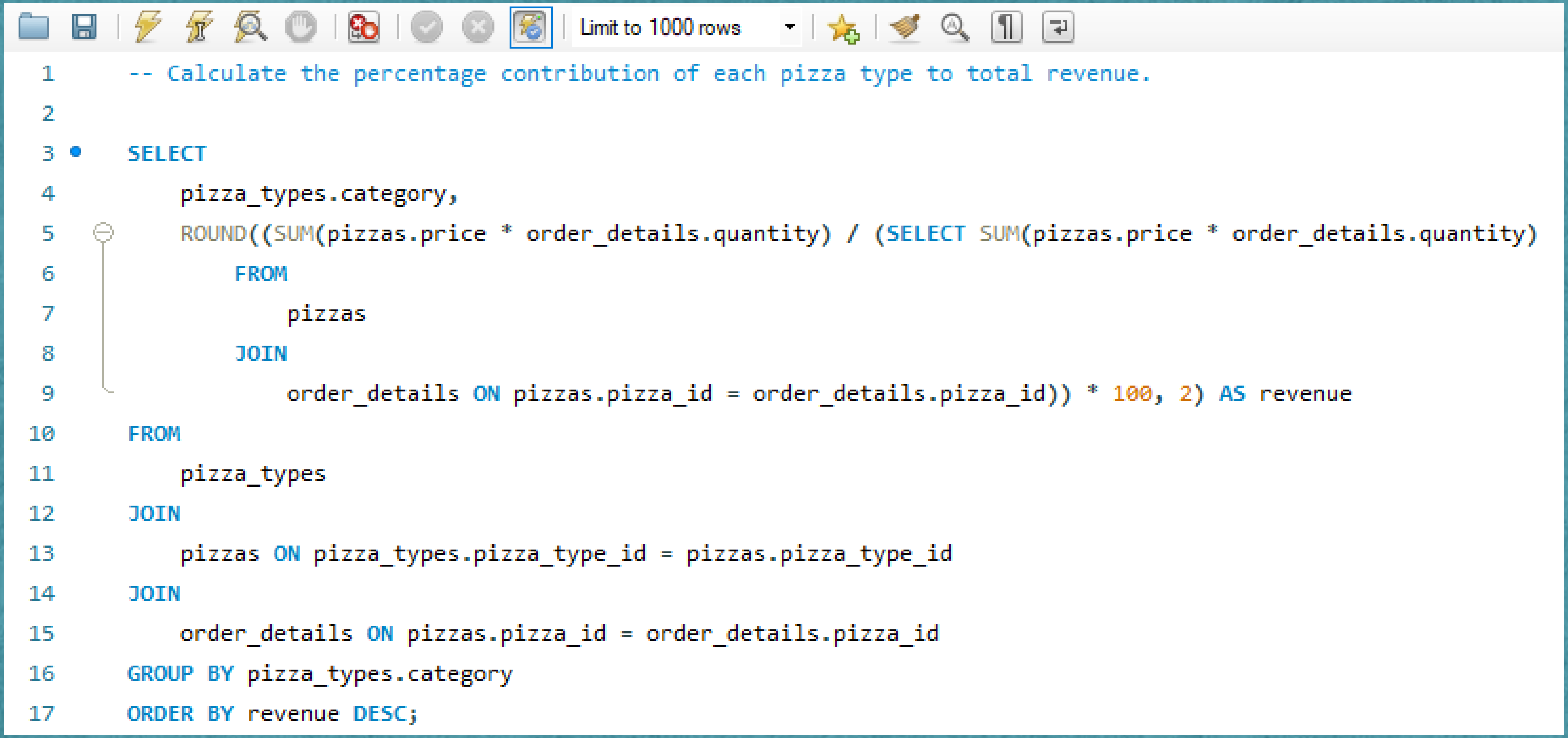
Output :



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

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

Query :

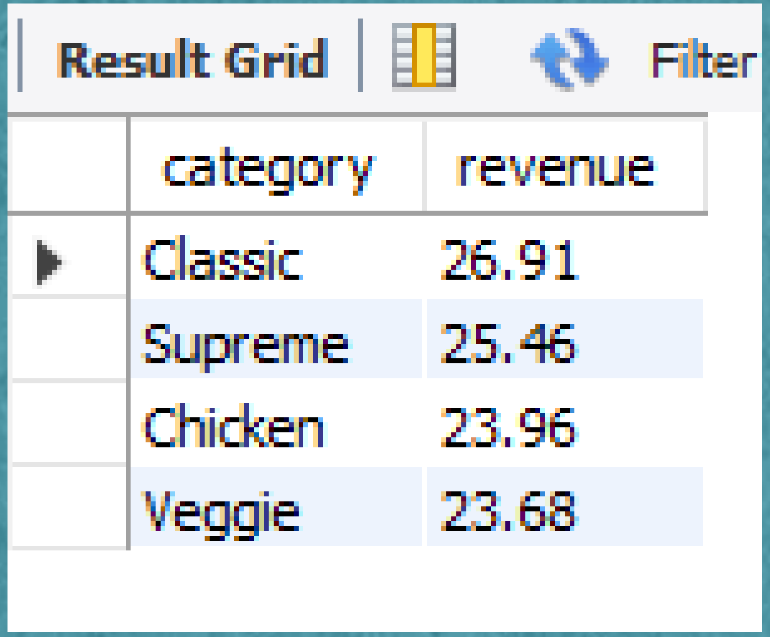


Limit to 1000 rows

```sql
-- Calculate the percentage contribution of each pizza type to total revenue.

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

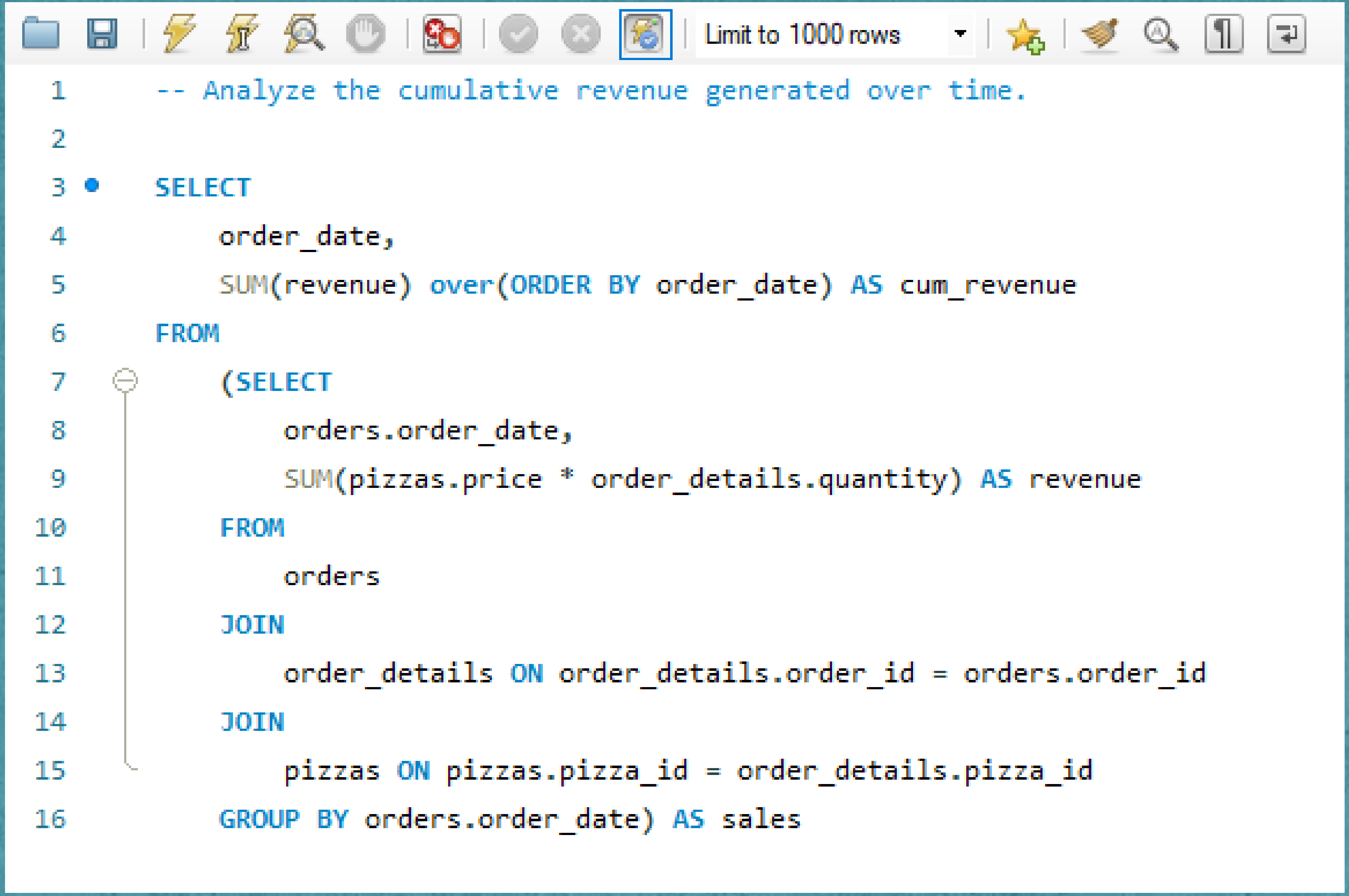
Output :



```
category   revenue
Classic    26.91
Supreme    25.46
Chicken    23.96
Veggie     23.68
```

-- Analyze the cumulative revenue generated over time.

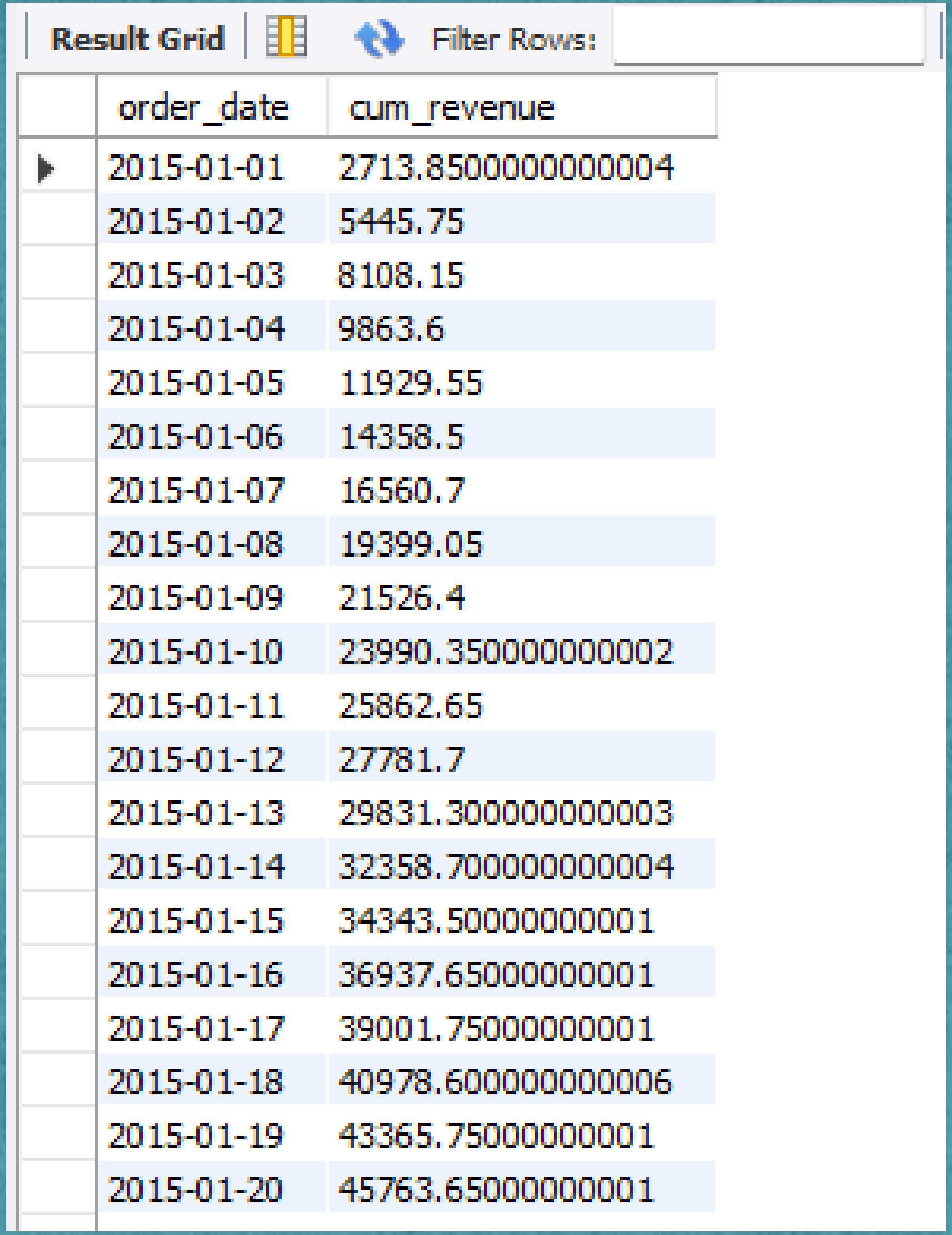
Query :



```sql
-- Analyze the cumulative revenue generated over time.

SELECT
    order_date,
    SUM(revenue) over(ORDER BY order_date) AS cum_revenue
FROM
    (SELECT
        orders.order_date,
        SUM(pizzas.price * order_details.quantity) AS revenue
    FROM
        orders
    JOIN
        order_details ON order_details.order_id = orders.order_id
    JOIN
        pizzas ON pizzas.pizza_id = order_details.pizza_id
    GROUP BY orders.order_date) AS sales
```

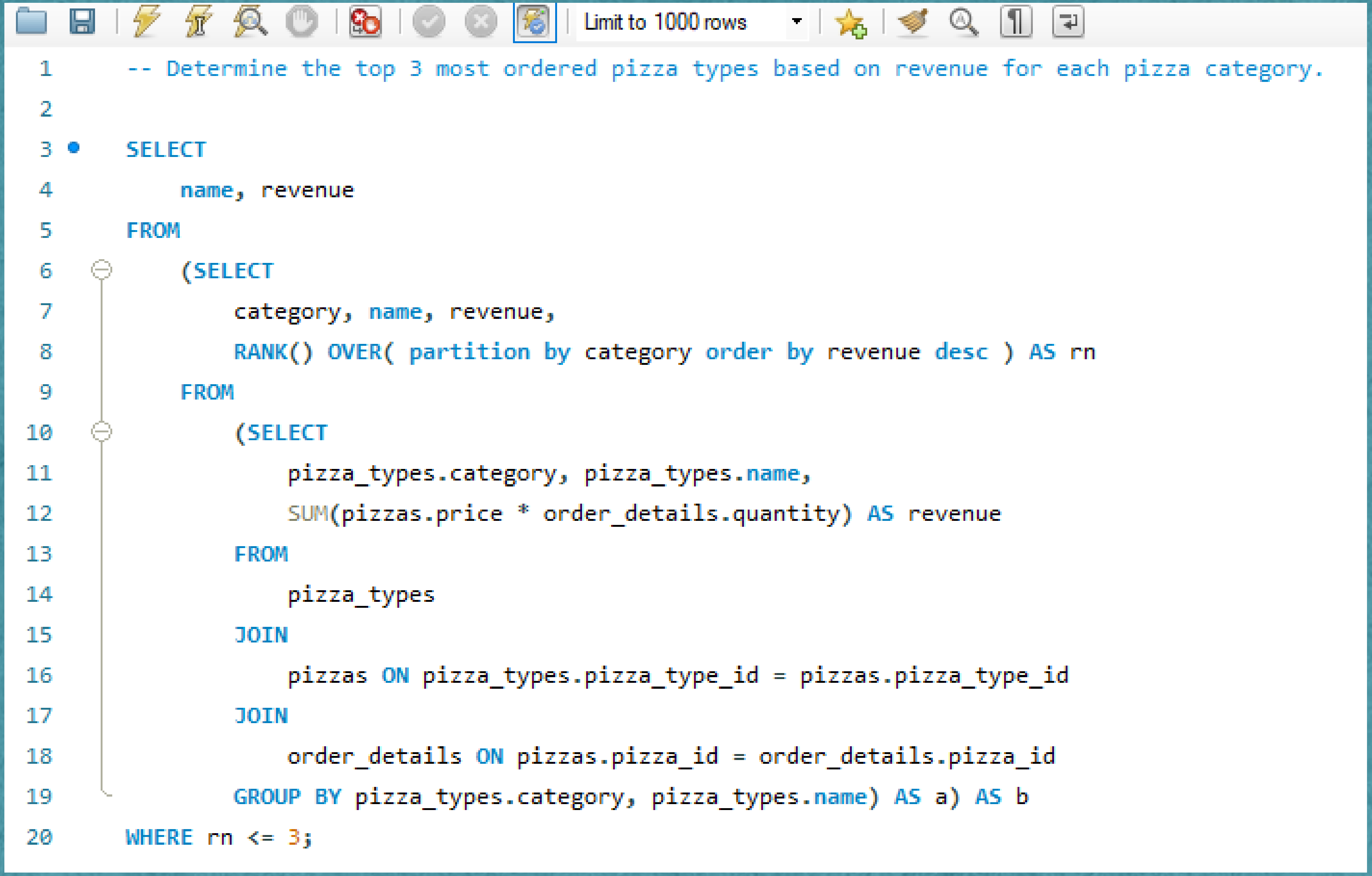
Output :



```
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
2015-01-16   36937.65000000001
2015-01-17   39001.75000000001
2015-01-18   40978.600000000006
2015-01-19   43365.75000000001
2015-01-20   45763.65000000001
```

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

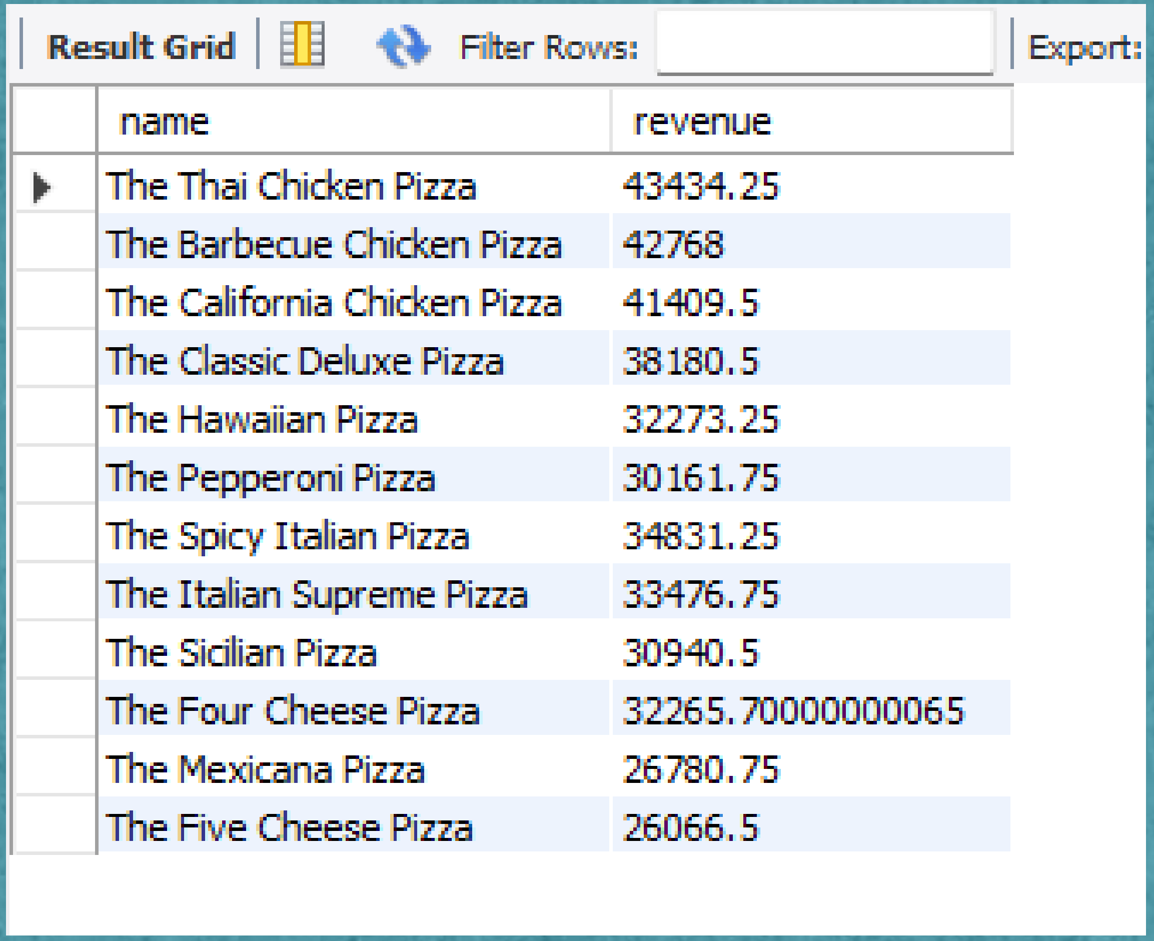
Query :



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

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(pizzas.price * order_details.quantity) AS revenue
        FROM
            pizza_types
        JOIN
            pizzas ON pizza_types.pizza_type_id = pizzas.pizza_type_id
        JOIN
            order_details ON pizzas.pizza_id = order_details.pizza_id
        GROUP BY pizza_types.category, pizza_types.name) AS a) AS b
WHERE rn <= 3;
```

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

Thank you!

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