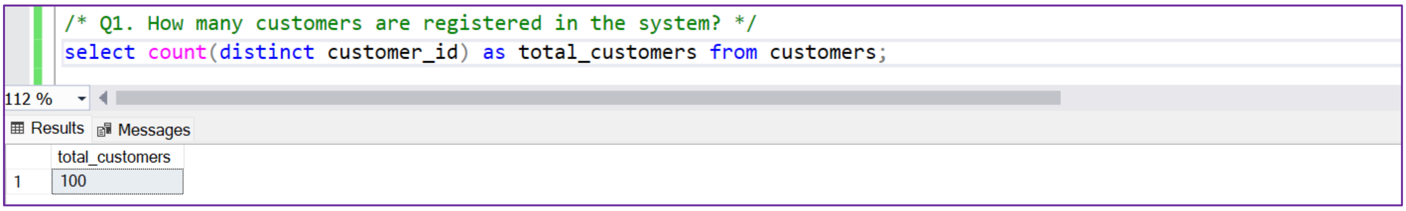
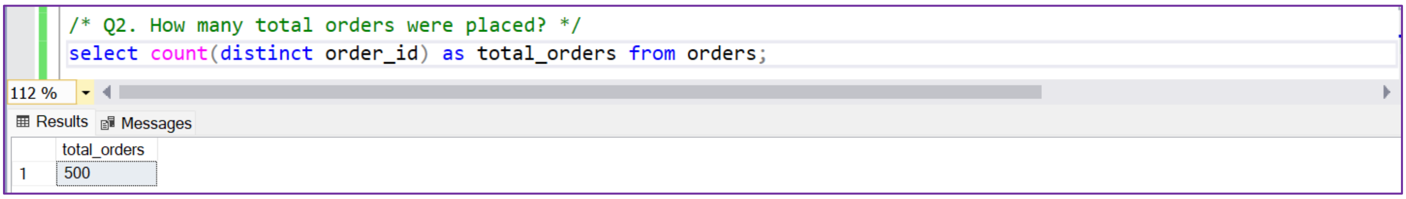
Answers:



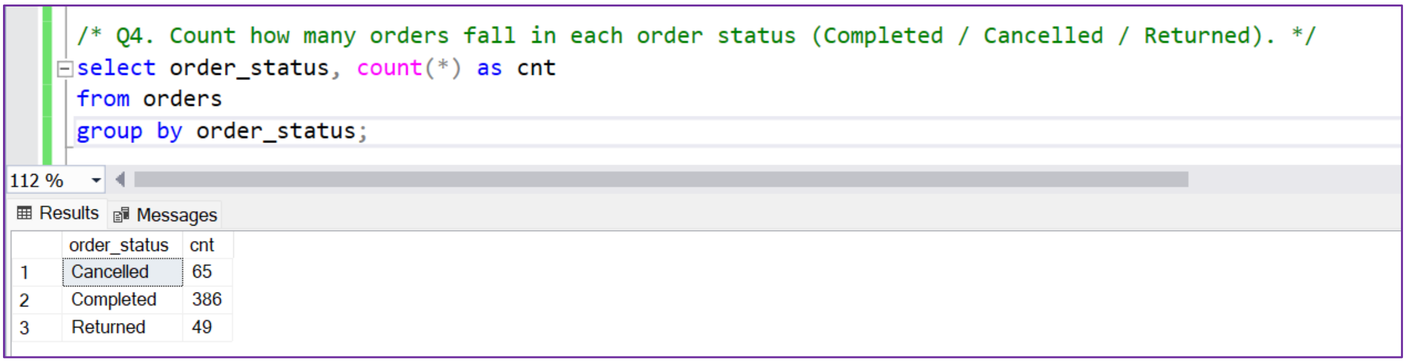
```sql
/* Q1. How many customers are registered in the system? */
select count(distinct customer_id) as total_customers from customers;
```

	total_customers
1	100



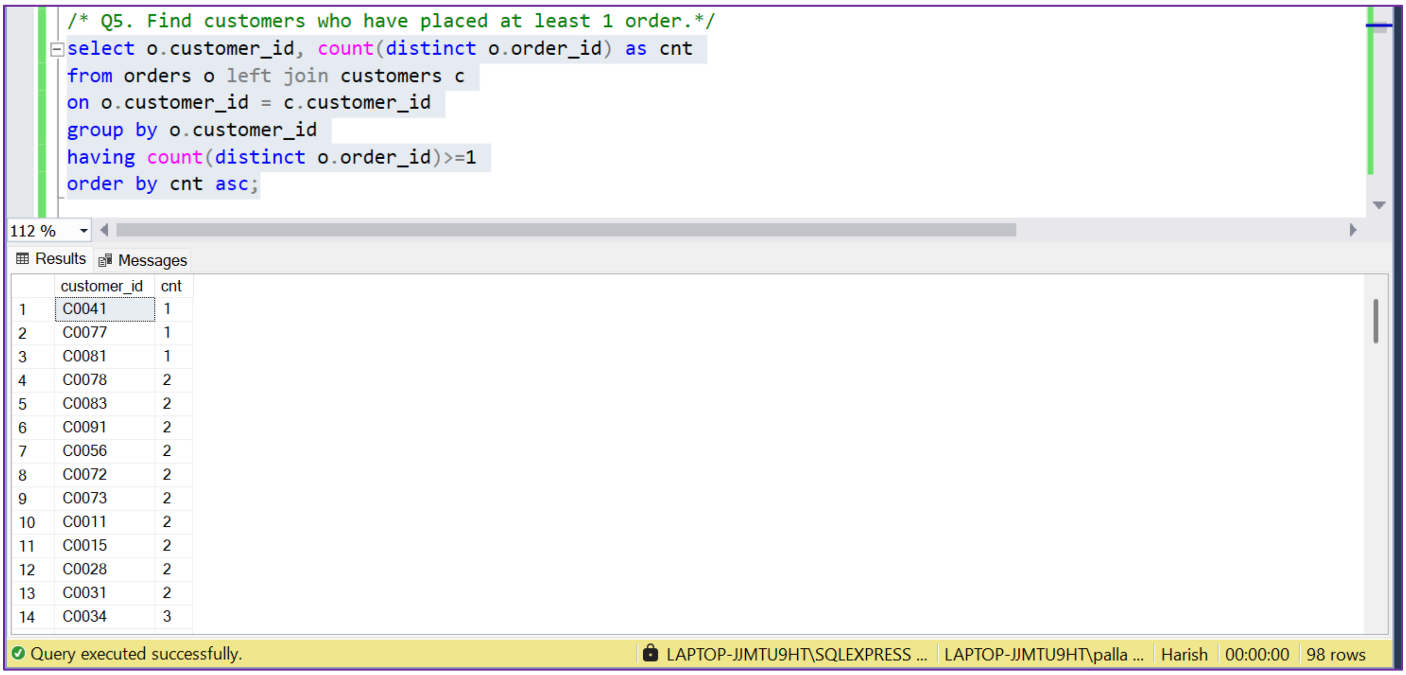
```sql
/* Q2. How many total orders were placed? */
select count(distinct order_id) as total_orders from orders;
```

	total_orders
1	500



```sql
/* Q4. Count how many orders fall in each order status (Completed / Cancelled / Returned). */
select order_status, count(*) as cnt
from orders
group by order_status;
```

	order_status	cnt
1	Cancelled	65
2	Completed	386
3	Returned	49



```sql
/* Q5. Find customers who have placed at least 1 order.*/
select o.customer_id, count(distinct o.order_id) as cnt
from orders o left join customers c
on o.customer_id = c.customer_id
group by o.customer_id
having count(distinct o.order_id)>=1
order by cnt asc;
```

	customer_id	cnt
1	C0041	1
2	C0077	1
3	C0081	1
4	C0078	2
5	C0083	2
6	C0091	2
7	C0056	2
8	C0072	2
9	C0073	2
10	C0011	2
11	C0015	2
12	C0028	2
13	C0031	2
14	C0034	3

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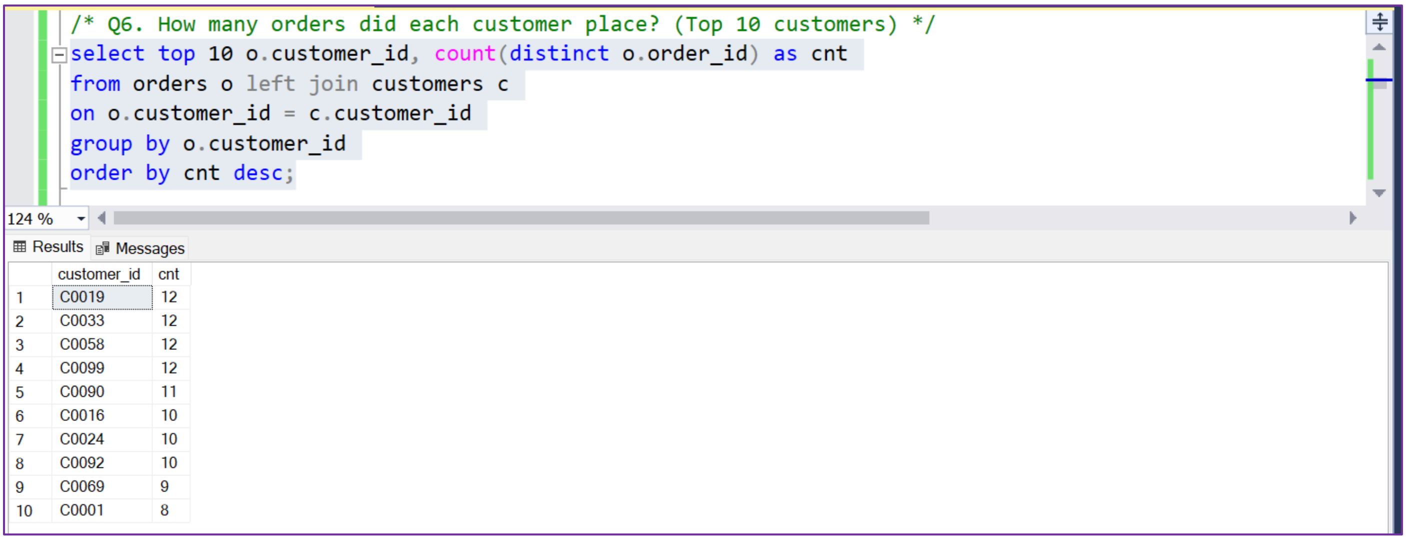
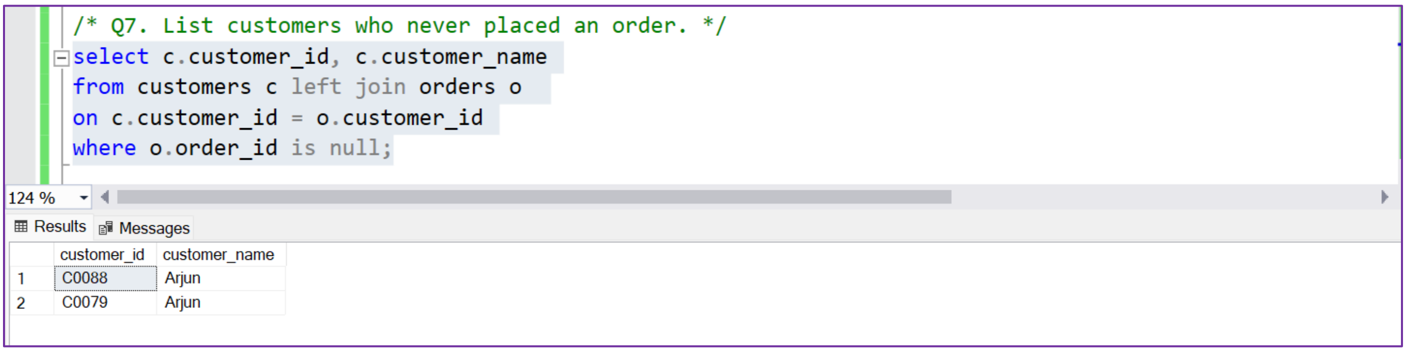


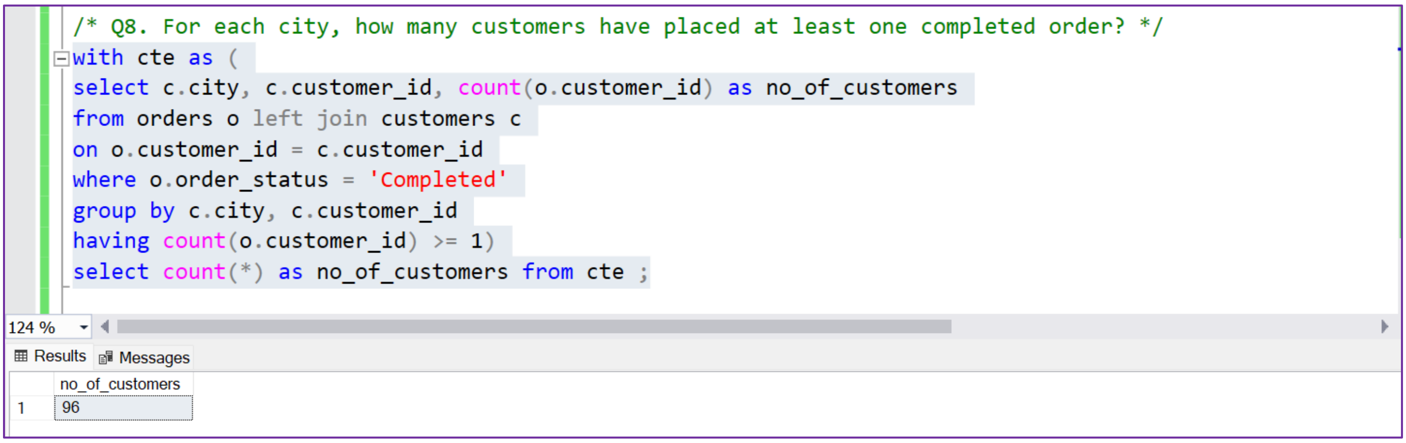
```sql
/* Q6. How many orders did each customer place? (Top 10 customers) */
select top 10 o.customer_id, count(distinct o.order_id) as cnt
from orders o left join customers c
on o.customer_id = c.customer_id
group by o.customer_id
order by cnt desc;
```

	customer_id	cnt
1	C0019	12
2	C0033	12
3	C0058	12
4	C0099	12
5	C0090	11
6	C0016	10
7	C0024	10
8	C0092	10
9	C0069	9
10	C0001	8



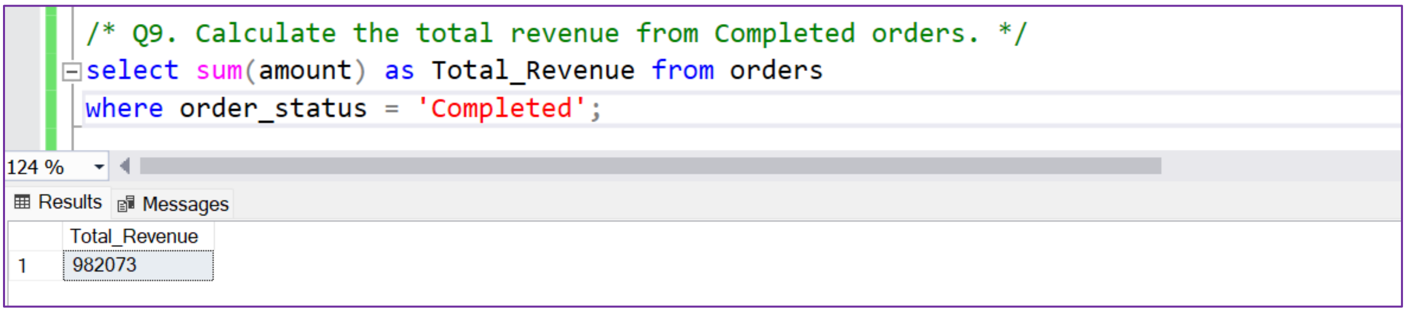
```sql
/* Q7. List customers who never placed an order. */
select c.customer_id, c.customer_name
from customers c left join orders o
on c.customer_id = o.customer_id
where o.order_id is null;
```

	customer_id	customer_name
1	C0088	Arjun
2	C0079	Arjun



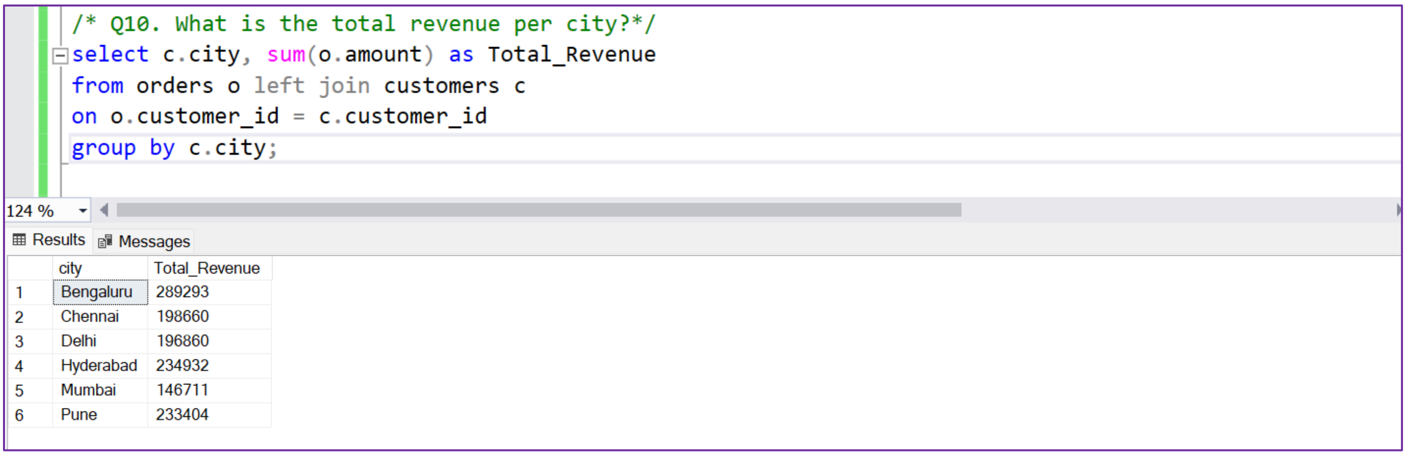
```sql
/* Q8. For each city, how many customers have placed at least one completed order? */
with cte as (
select c.city, c.customer_id, count(o.customer_id) as no_of_customers
from orders o left join customers c
on o.customer_id = c.customer_id
where o.order_status = 'Completed'
group by c.city, c.customer_id
having count(o.customer_id) >= 1)
select count(*) as no_of_customers from cte ;
```

	no_of_customers
1	96



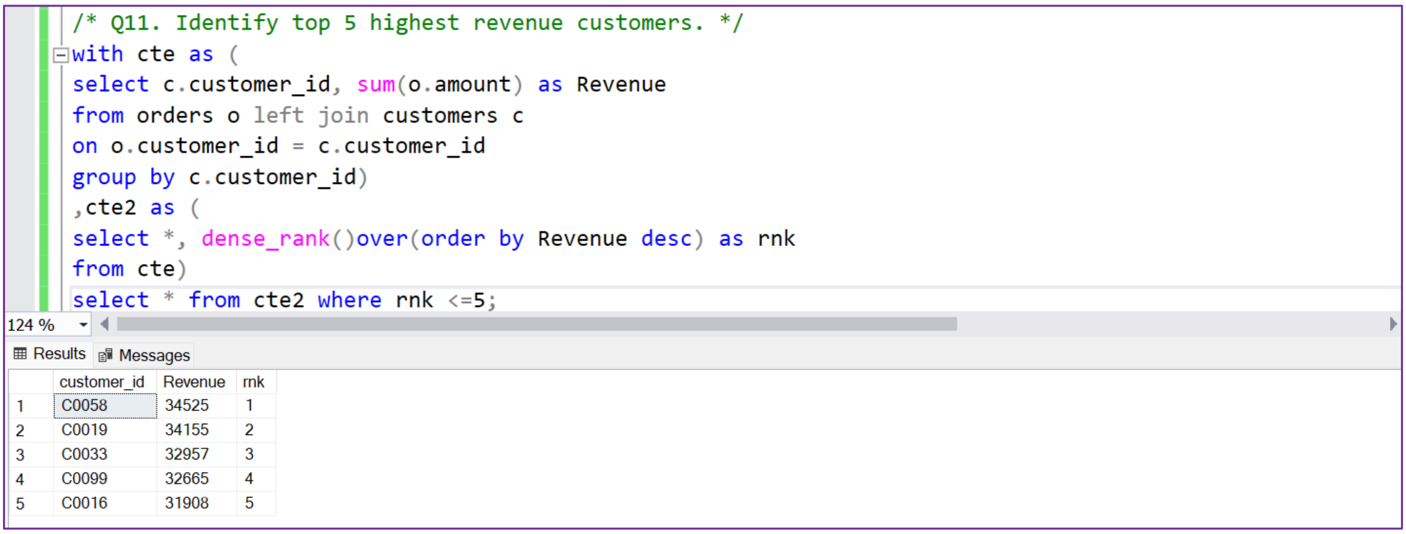
```sql
/* Q9. Calculate the total revenue from Completed orders. */
select sum(amount) as Total_Revenue from orders
where order_status = 'Completed';
```

	Total_Revenue
1	982073



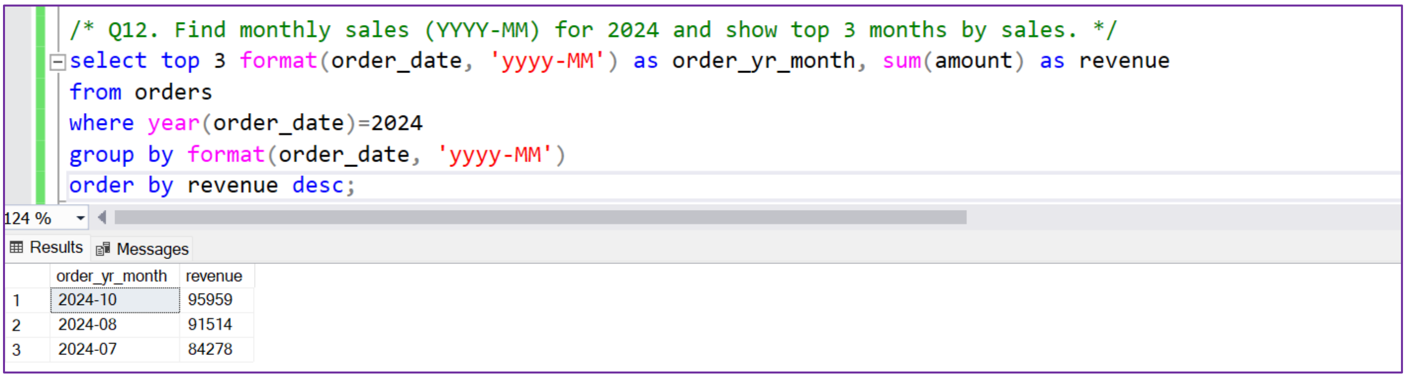
```
/* Q10. What is the total revenue per city?*/
select c.city, sum(o.amount) as Total_Revenue
from orders o left join customers c
on o.customer_id = c.customer_id
group by c.city;
```

	city	Total_Revenue
1	Bengaluru	289293
2	Chennai	198660
3	Delhi	196860
4	Hyderabad	234932
5	Mumbai	146711
6	Pune	233404



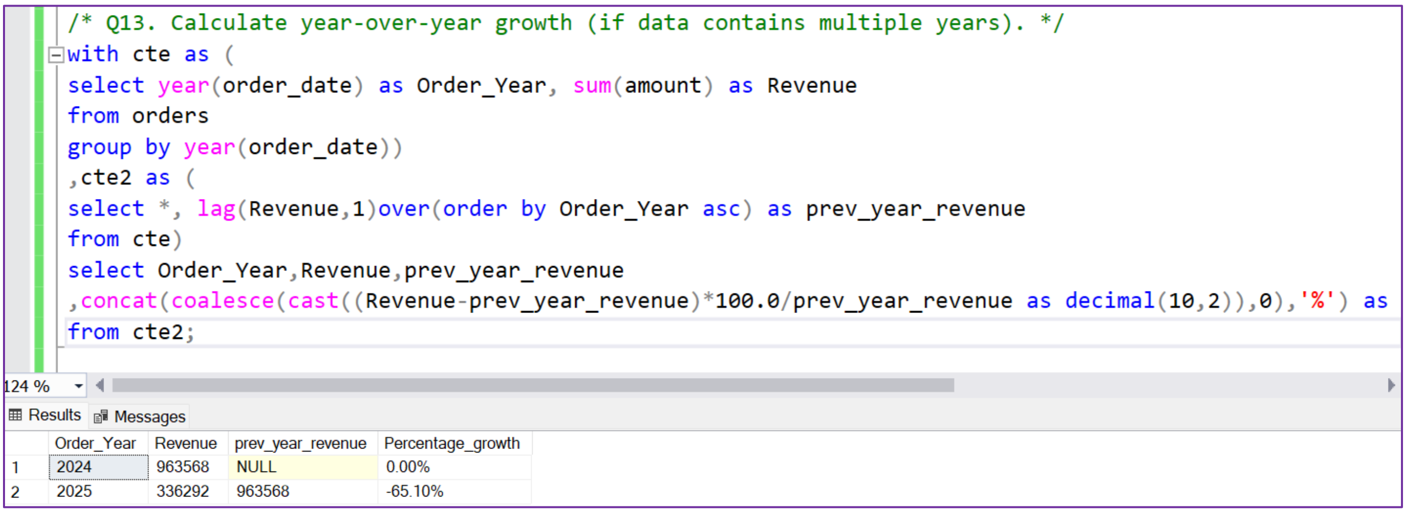
```
/* Q11. Identify top 5 highest revenue customers. */
with cte as (
select c.customer_id, sum(o.amount) as Revenue
from orders o left join customers c
on o.customer_id = c.customer_id
group by c.customer_id)
,cte2 as (
select *, dense_rank()over(order by Revenue desc) as rnk
from cte)
select * from cte2 where rnk <=5;
```

	customer_id	Revenue	rnk
1	C0058	34525	1
2	C0019	34155	2
3	C0033	32957	3
4	C0099	32665	4
5	C0016	31908	5



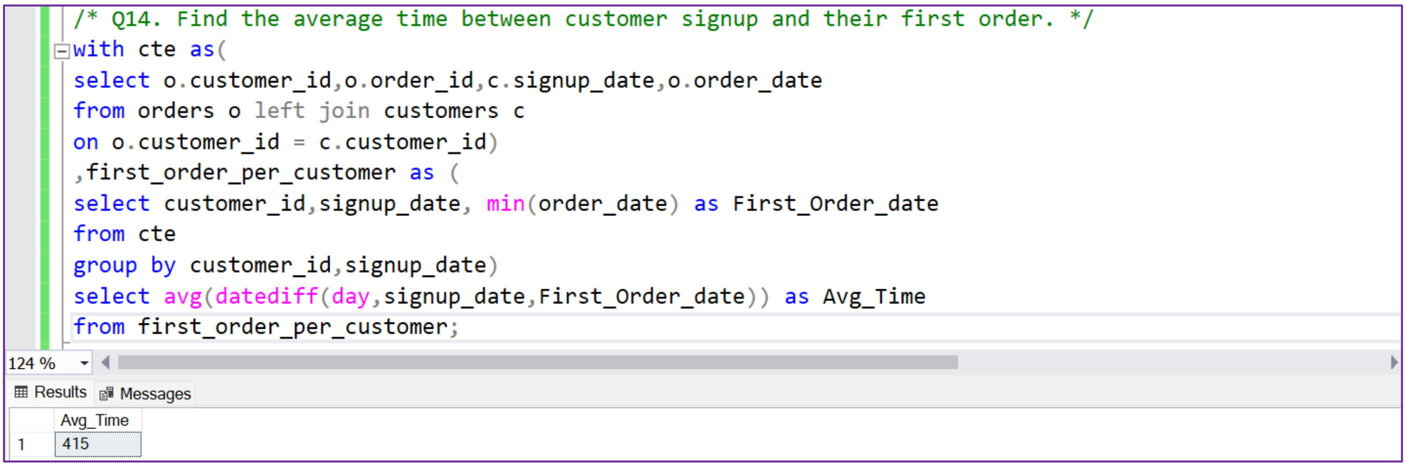
```
/* Q12. Find monthly sales (YYYY-MM) for 2024 and show top 3 months by sales. */
select top 3 format(order_date, 'yyyy-MM') as order_yr_month, sum(amount) as revenue
from orders
where year(order_date)=2024
group by format(order_date, 'yyyy-MM')
order by revenue desc;
```

	order_yr_month	revenue
1	2024-10	95959
2	2024-08	91514
3	2024-07	84278



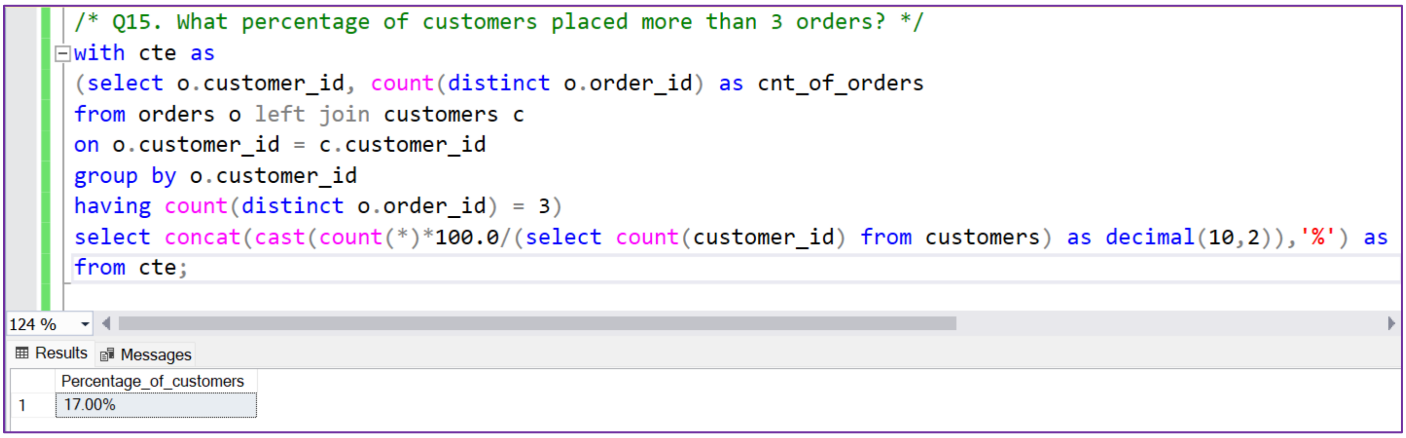
```
/* Q13. Calculate year-over-year growth (if data contains multiple years). */
with cte as (
select year(order_date) as Order_Year, sum(amount) as Revenue
from orders
group by year(order_date))
,cte2 as (
select *, lag(Revenue,1)over(order by Order_Year asc) as prev_year_revenue
from cte)
select Order_Year,Revenue,prev_year_revenue
,concat(coalesce(cast((Revenue-prev_year_revenue)*100.0/prev_year_revenue as decimal(10,2)),0),'%') as
from cte2;
```

	Order_Year	Revenue	prev_year_revenue	Percentage_growth
1	2024	963568	NULL	0.00%
2	2025	336292	963568	-65.10%



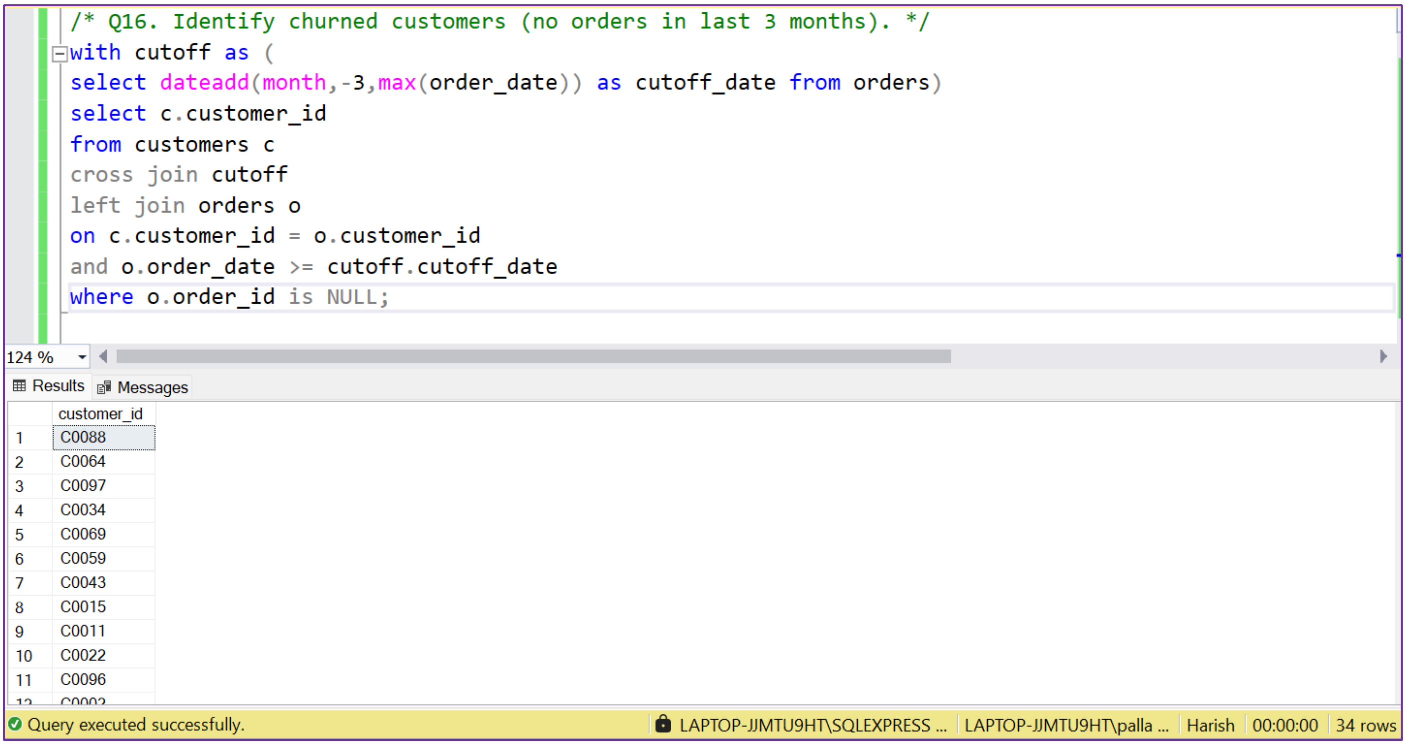
```sql
/* Q14. Find the average time between customer signup and their first order. */
with cte as(
select o.customer_id,o.order_id,c.signup_date,o.order_date
from orders o left join customers c
on o.customer_id = c.customer_id)
,first_order_per_customer as (
select customer_id,signup_date, min(order_date) as First_Order_date
from cte
group by customer_id,signup_date)
select avg(datediff(day,signup_date,First_Order_date)) as Avg_Time
from first_order_per_customer;
```

	Avg_Time
1	415



```sql
/* Q15. What percentage of customers placed more than 3 orders? */
with cte as
(select o.customer_id, count(distinct o.order_id) as cnt_of_orders
from orders o left join customers c
on o.customer_id = c.customer_id
group by o.customer_id
having count(distinct o.order_id) = 3)
select concat(cast(count(*)*100.0/(select count(customer_id) from customers) as decimal(10,2)),'%') as
from cte;
```

	Percentage_of_customers
1	17.00%



```sql
/* Q16. Identify churned customers (no orders in last 3 months). */
with cutoff as (
select dateadd(month,-3,max(order_date)) as cutoff_date from orders)
select c.customer_id
from customers c
cross join cutoff
left join orders o
on c.customer_id = o.customer_id
and o.order_date >= cutoff.cutoff_date
where o.order_id is NULL;
```

	customer_id
1	C0088
2	C0064
3	C0097
4	C0034
5	C0069
6	C0059
7	C0043
8	C0015
9	C0011
10	C0022
11	C0096
12	C0002

```
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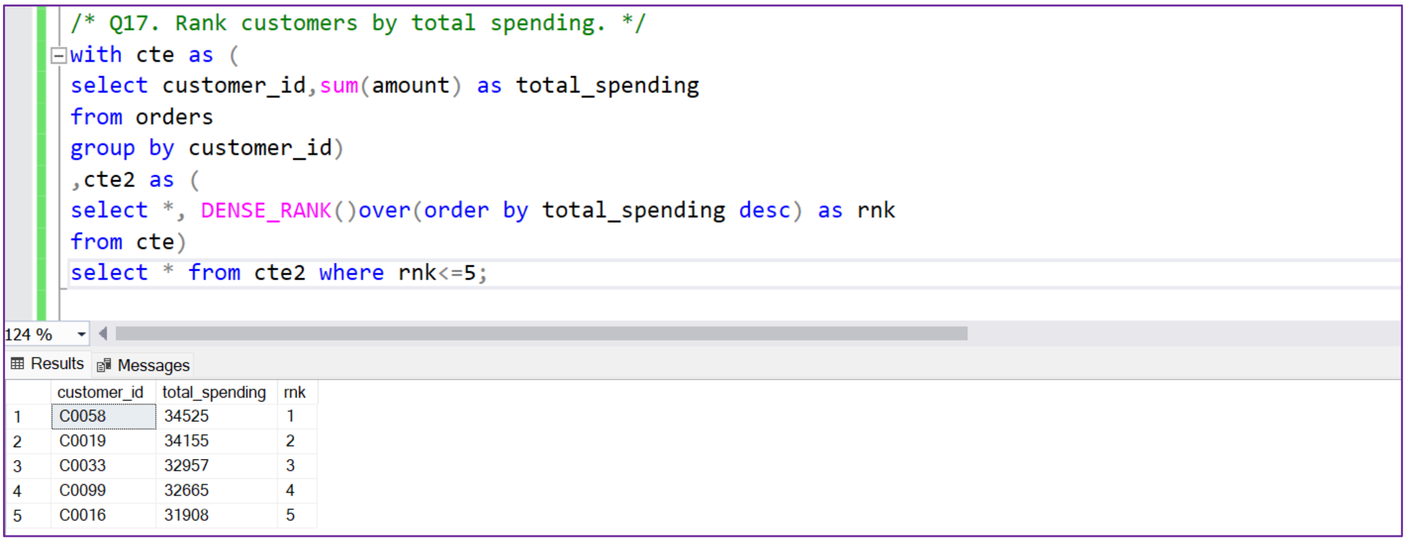

```
/* Q17. Rank customers by total spending. */
with cte as (
select customer_id,sum(amount) as total_spending
from orders
group by customer_id)
,cte2 as (
select *, DENSE_RANK()over(order by total_spending desc) as rnk
from cte)
select * from cte2 where rnk<=5;
```

	customer_id	total_spending	rnk
1	C0058	34525	1
2	C0019	34155	2
3	C0033	32957	3
4	C0099	32665	4
5	C0016	31908	5