PROJECT 1

ShopFast

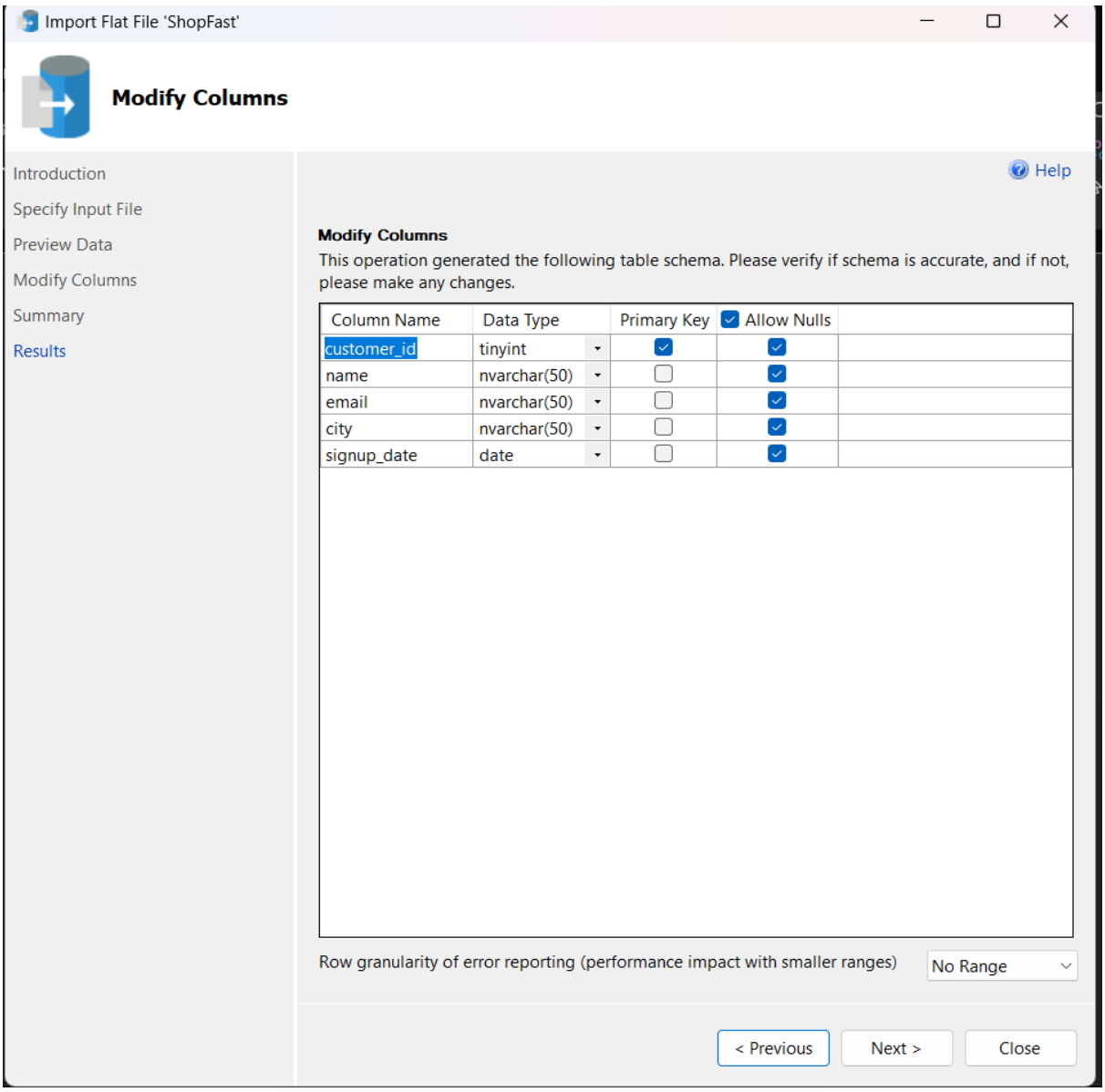
STEP 1: Creating a new Database,

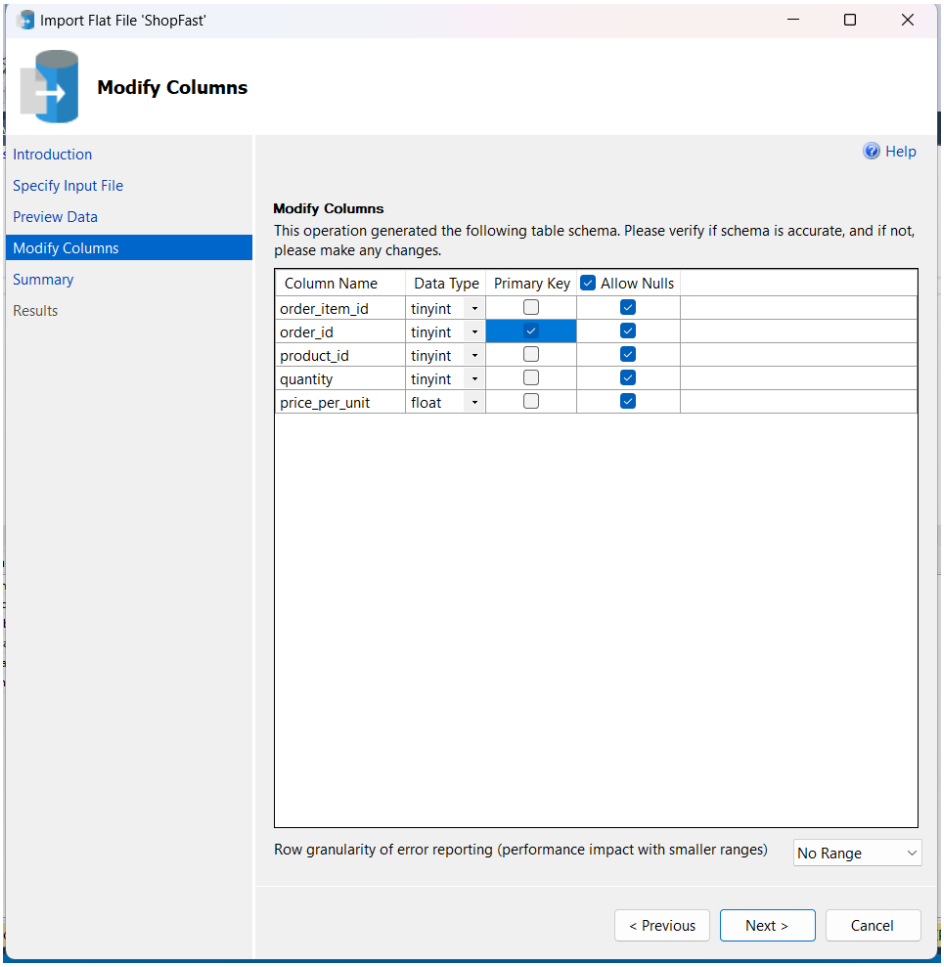
create database ShopFast;

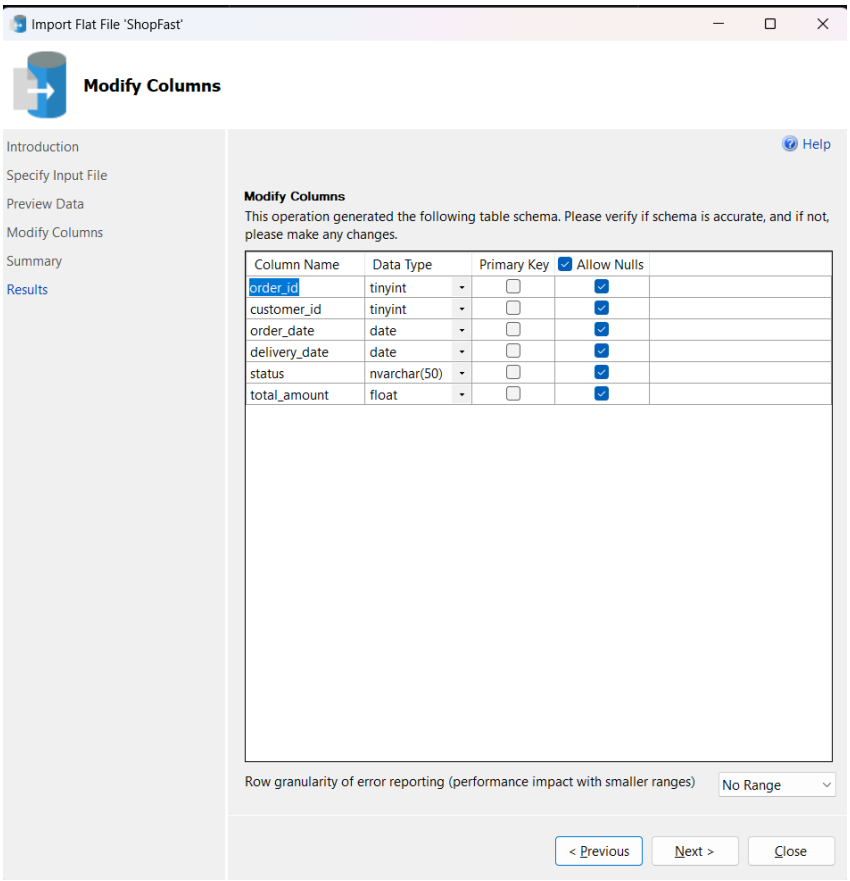
STEP 2: using the new database,

use ShopFast;

STEP 3: Inserting the values through given csv files,




Import Flat File 'ShopFast'
Modify Columns
Introduction
Specify Input File
Preview Data
Modify Columns
Summary
Results
Help
Modify Columns
This operation generated the following table schema. Please verify if schema is accurate, and if not, please make any changes.
Column Name
Data Type
Primary Key
Allow Nulls
order_item_id tinyint
order_id tinyint
product_id tinyint
quantity tinyint
price_per_unit float
Row granularity of error reporting (performance impact with smaller ranges)
No Range
< Previous
Next >
Cancel


Import Flat File 'ShopFast'
Modify Columns
Introduction
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Preview Data
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Summary
Results
Help
Modify Columns
This operation generated the following table schema. Please verify if schema is accurate, and if not, please make any changes.
Column Name
Data Type
Primary Key
Allow Nulls
order_id tinyint
customer_id tinyint
order_date date
delivery_date date
status nvarchar(50)
total_amount float
Row granularity of error reporting (performance impact with smaller ranges)
No Range
< Previous
Next >
Close

Import Flat File 'ShopFast'

Modify Columns

- Introduction
- Specify Input File
- Preview Data
- Modify Columns
- Summary
- Results

Help

Modify Columns

This operation generated the following table schema. Please verify if schema is accurate, and if not, please make any changes.

Column Name	Data Type	Primary Key	Allow Nulls
product_id	tinyint	☐	☑
product_name	nvarchar(50)	☑	☑
category	nvarchar(50)	☐	☑
launch_date	date	☐	☑
stock_quantity	tinyint	☐	☑

Row granularity of error reporting (performance impact with smaller ranges) No Range

< Previous | Next > | Cancel

Import Flat File 'ShopFast'

Results

- Introduction
- Specify Input File
- Preview Data
- Modify Columns
- Summary
- Results

Help

Operation Complete

Summary:

Name	Result
Insert Data	Success

< Previous | Next > | Close

STEP 4: Check weather all the data's are inserted properly,

select * from CUSTOMERS;

select * from ORDER_ITEMS;

select * from ORDERS;

select * from PRODUCTS;

SQLQuery3.sql - HP...AVILION\sjlak (72))* | 2_6_SQL_Practice_te...AVILION\sjlak (79

```
create database ShopFast;

use ShopFast;


select * from CUSTOMERS;

select * from ORDER_ITEMS;

select * from ORDERS;

select * from PRODUCTS;
```

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Results | Messages

	customer_id	name	email	city	signup_date
1	1	Alice	alice@example.com	Delhi	2022-01-15
2	2	Bob	bob@example.com	Mumbai	2022-02-20
3	3	Charlie	charlie@example.com	Bangalore	2022-03-10
4	4	Diana	diana@example.com	Hyderabad	2022-04-01
5	5	Ethan	ethan@example.com	Chennai	2022-05-25

	order_item_id	order_id	product_id	quantity	price_per_unit
1	1	101	1	2	50.25
2	2	102	2	1	200
3	3	103	1	1	175
4	4	104	3	3	100
5	5	105	4	1	120

	order_id	customer_id	order_date	delivery_date	status	total_amount
1	101	1	2023-01-10	2023-01-15	Delivered	150.5
2	102	2	2023-02-12	2023-02-18	Delivered	200
3	103	1	2023-02-28	2023-03-05	Returned	175
4	104	3	2023-03-05	2023-03-08	Delivered	300
5	105	4	2023-03-15	NULL	Pending	120

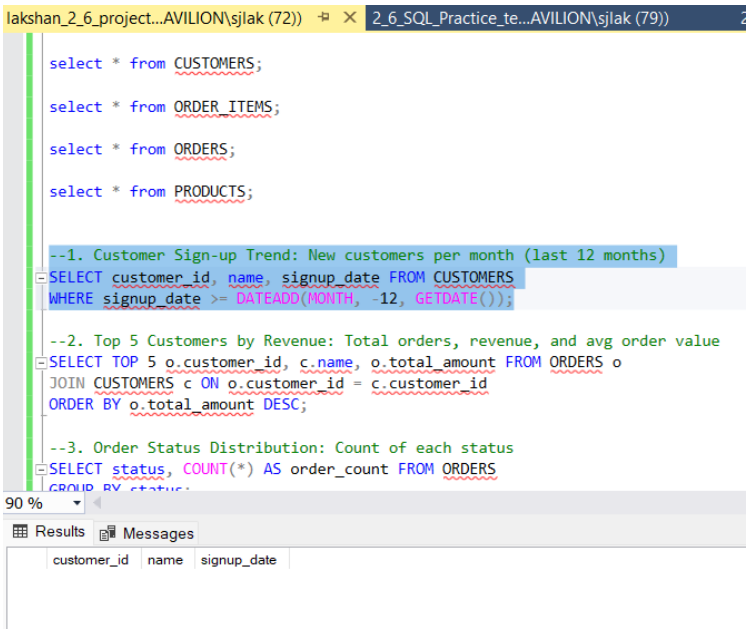
	product_id	product_name	category	launch_date	stock_quantity
1	2	Bluetooth Speaker	Electronics	2022-01-03	50
2	4	Notebook	Stationery	2022-01-07	200
3	1	Pen Drive	Electronics	2022-01-01	100
4	3	Wireless Mouse	Electronics	2022-01-05	75

STEP 5: Answers for all Problem Set

--1. Customer Sign-up Trend: New customers per month (last 12 months)

SELECT customer_id, name, signup_date FROM CUSTOMERS

WHERE signup_date >= DATEADD(MONTH, -12, GETDATE());

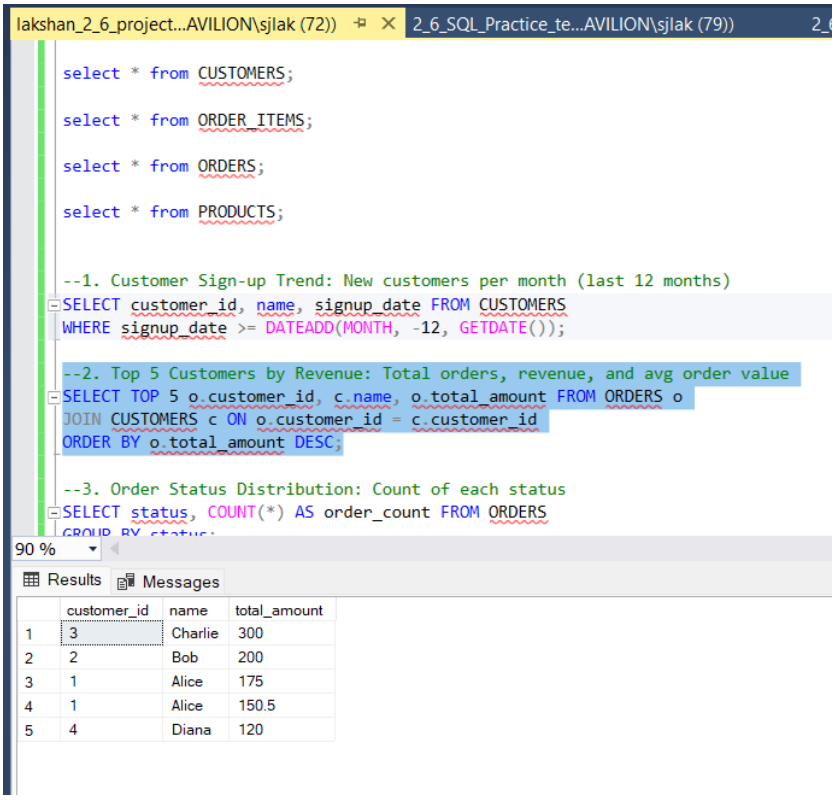


--2. Top 5 Customers by Revenue: Total orders, revenue, and avg order value

SELECT TOP 5 o.customer_id, c.name, o.total_amount FROM ORDERS o

JOIN CUSTOMERS c ON o.customer_id = c.customer_id

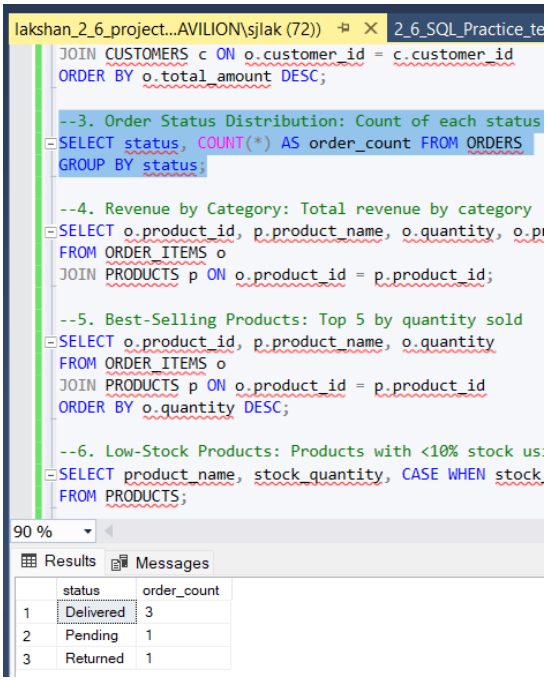
ORDER BY o.total_amount DESC;



--3. Order Status Distribution: Count of each status

SELECT status, COUNT(*) AS order_count FROM ORDERS

GROUP BY status;

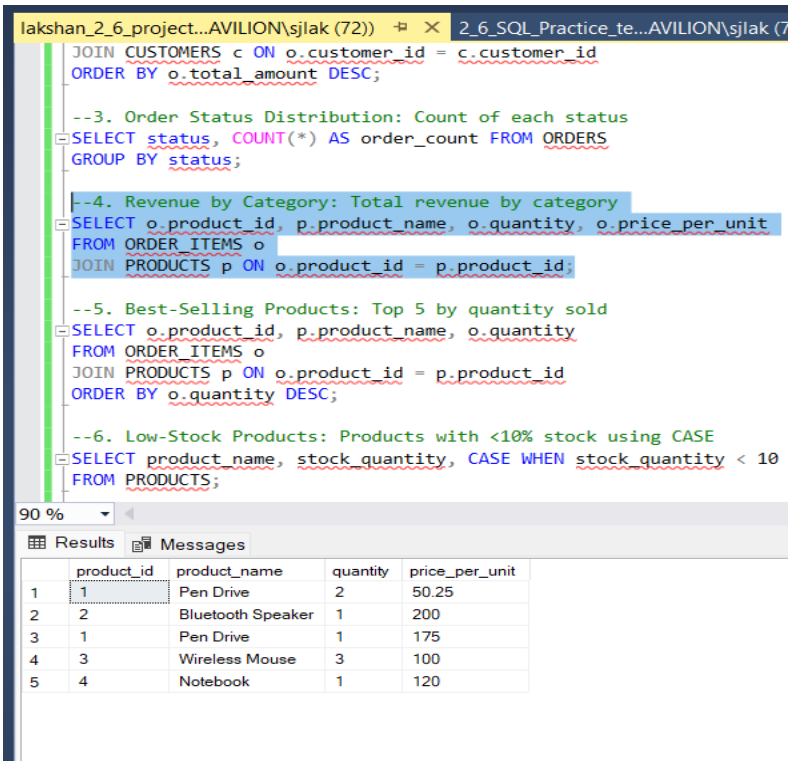


--4. Revenue by Category: Total revenue by category

SELECT o.product_id, p.product_name, o.quantity, o.price_per_unit

FROM ORDER_ITEMS o

JOIN PRODUCTS p ON o.product_id = p.product_id;



--5. Best-Selling Products: Top 5 by quantity sold

SELECT o.product_id, p.product_name, o.quantity

FROM ORDER_ITEMS o

JOIN PRODUCTS p ON o.product_id = p.product_id

ORDER BY o.quantity DESC;

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```
JOIN CUSTOMERS c ON o.customer_id = c.customer_id
ORDER BY o.total_amount DESC;

--3. Order Status Distribution: Count of each status
SELECT status, COUNT(*) AS order_count FROM ORDERS
GROUP BY status;

--4. Revenue by Category: Total revenue by category
SELECT o.product_id, p.product_name, o.quantity, o.price_per_unit
FROM ORDER_ITEMS o
JOIN PRODUCTS p ON o.product_id = p.product_id;

--5. Best-Selling Products: Top 5 by quantity sold
SELECT o.product_id, p.product_name, o.quantity
FROM ORDER_ITEMS o
JOIN PRODUCTS p ON o.product_id = p.product_id
ORDER BY o.quantity DESC;

--6. Low-Stock Products: Products with <10% stock using CASE
SELECT product_name, stock_quantity, CASE WHEN stock_quantity < 10
FROM PRODUCTS;
```

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Results | Messages

	product_id	product_name	quantity
1	3	Wireless Mouse	3
2	1	Pen Drive	2
3	2	Bluetooth Speaker	1
4	1	Pen Drive	1
5	4	Notebook	1

--6. Low-Stock Products: Products with <10% stock using CASE

SELECT product_name, stock_quantity, CASE WHEN stock_quantity < 10 THEN 'Low Stock' ELSE 'OK' END AS stock_status

FROM PRODUCTS;

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```
--5. Best-Selling Products: Top 5 by quantity sold
SELECT o.product_id, p.product_name, o.quantity
FROM ORDER_ITEMS o
JOIN PRODUCTS p ON o.product_id = p.product_id
ORDER BY o.quantity DESC;

--6. Low-Stock Products: Products with <10% stock using CASE
SELECT product_name, stock_quantity, CASE WHEN stock_quantity < 10 THEN 'Low Stock' ELSE 'OK' END AS stock_status
FROM PRODUCTS;

--7. Avg Delivery Time per Month
SELECT FORMAT(order_date, 'yyyy-MM') AS order_month, AVG(DATEDIFF(DAY, order_date, delivery_date)) AS avg_delivery_day
FROM ORDERS
WHERE delivery_date IS NOT NULL
GROUP BY FORMAT(order_date, 'yyyy-MM')
ORDER BY order_month;

--8. Orders with Delivery >7 days
SELECT order_id, order_date, delivery_date
FROM ORDERS
WHERE DATEDIFF(DAY, order_date, delivery_date) > 7;
```

90 %

Results | Messages

	product_name	stock_quantity	stock_status
1	Bluetooth Speaker	50	OK
2	Notebook	200	OK
3	Pen Drive	100	OK
4	Wireless Mouse	75	OK

--7. Avg Delivery Time per Month

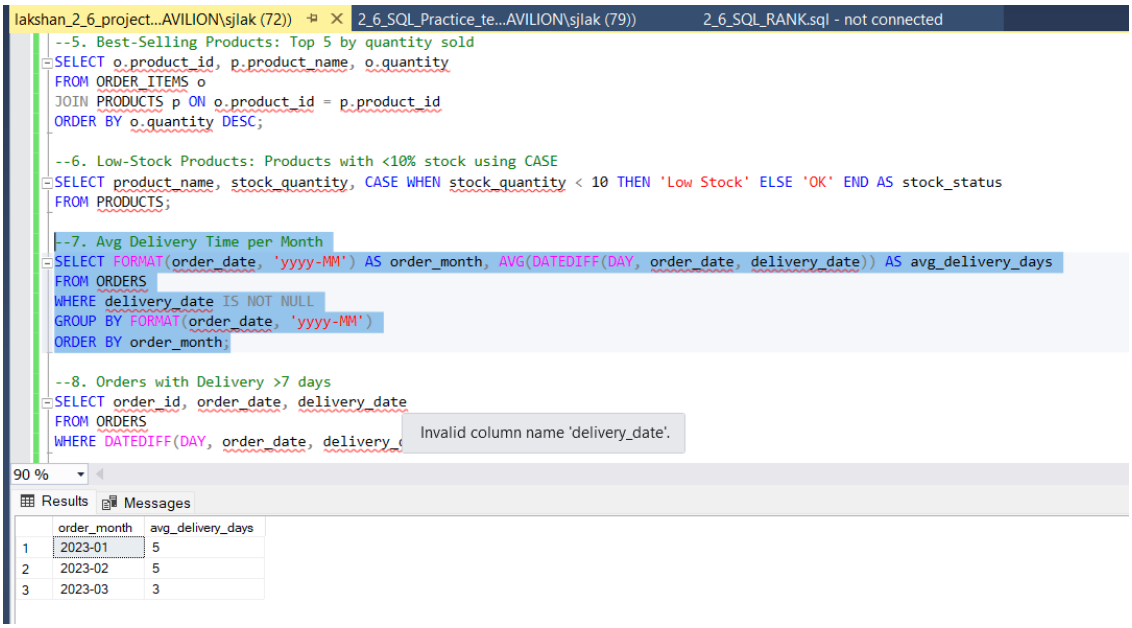
SELECT FORMAT(order_date, 'yyyy-MM') AS order_month, AVG(DATEDIFF(DAY, order_date, delivery_date)) AS avg_delivery_days

FROM ORDERS

WHERE delivery_date IS NOT NULL

GROUP BY FORMAT(order_date, 'yyyy-MM')

ORDER BY order_month;

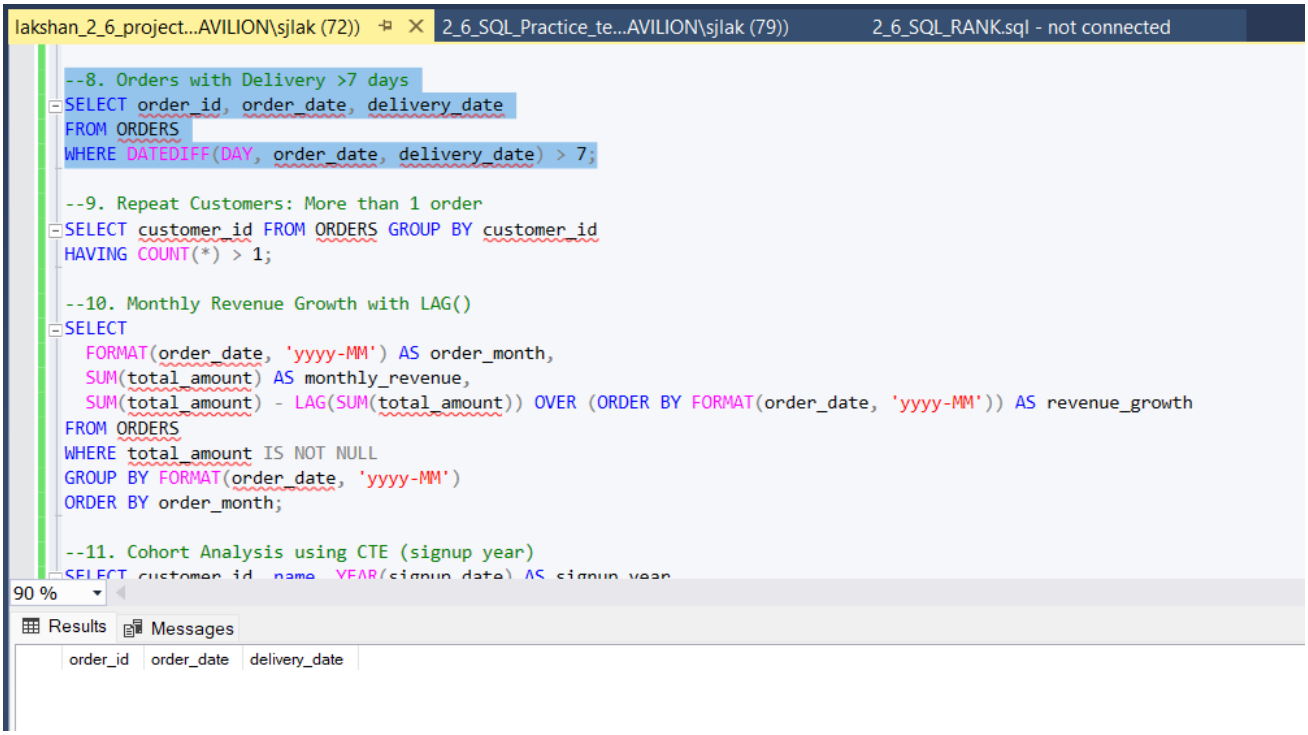


--8. Orders with Delivery >7 days

SELECT order_id, order_date, delivery_date

FROM ORDERS

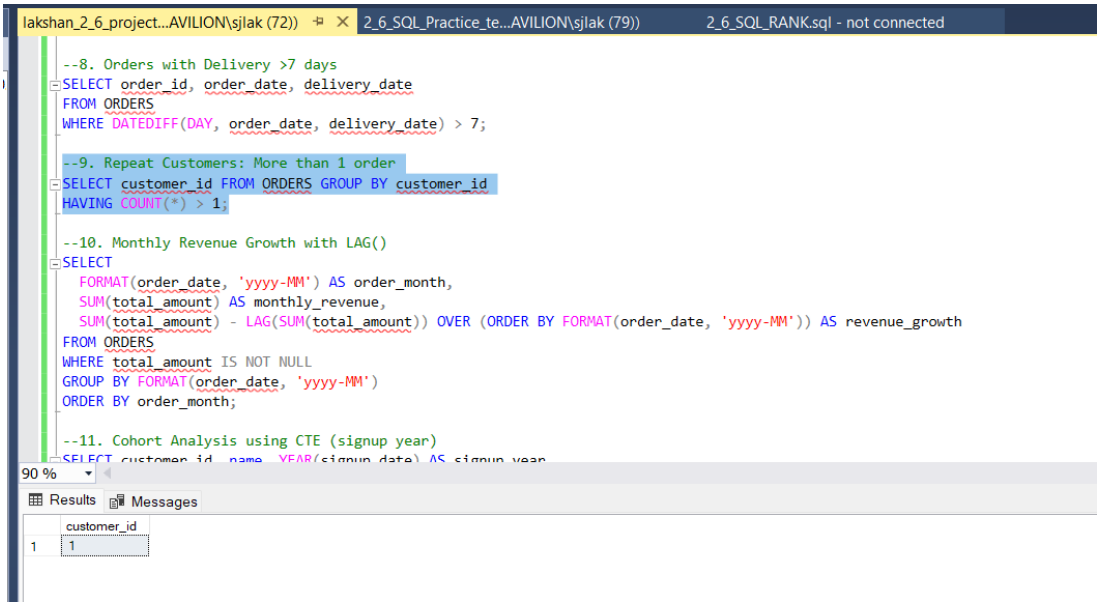
WHERE DATEDIFF(DAY, order_date, delivery_date) > 7;



--9. Repeat Customers: More than 1 order

SELECT customer_id FROM ORDERS GROUP BY customer_id

HAVING COUNT(*) > 1;



--10. Monthly Revenue Growth with LAG()

SELECT

FORMAT(order_date, 'yyyy-MM') AS order_month,

SUM(total_amount) AS monthly_revenue,

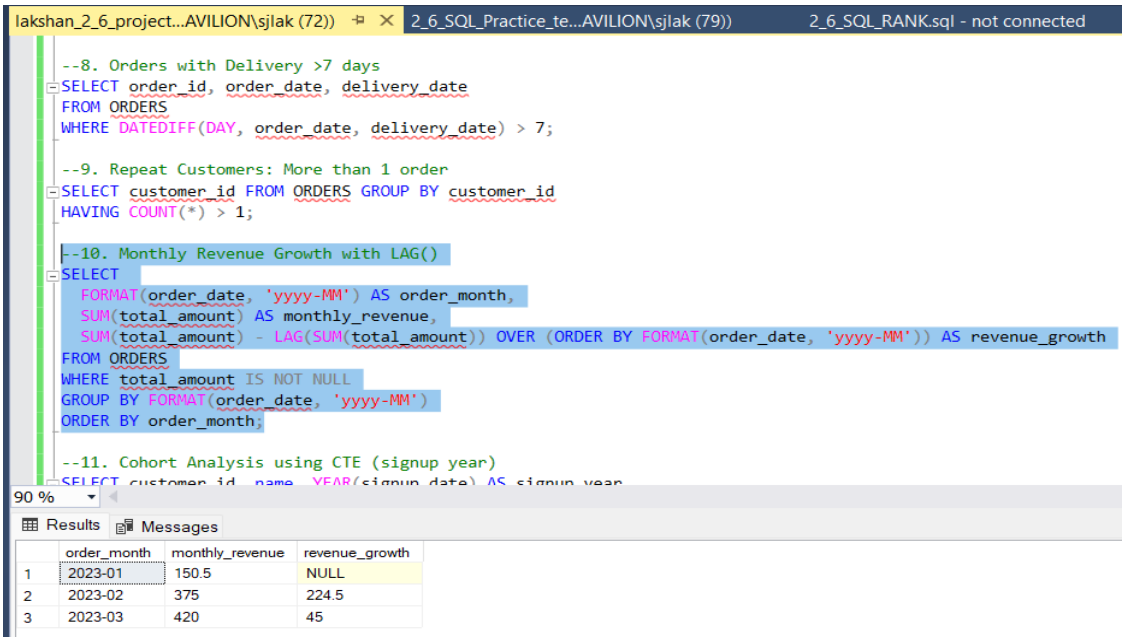
SUM(total_amount) - LAG(SUM(total_amount)) OVER (ORDER BY FORMAT(order_date, 'yyyy-MM')) AS revenue_growth

FROM ORDERS

WHERE total_amount IS NOT NULL

GROUP BY FORMAT(order_date, 'yyyy-MM')

ORDER BY order_month;



--11. Cohort Analysis using CTE (signup year)

SELECT customer_id, name, YEAR(signup_date) AS signup_year

FROM CUSTOMERS;

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```
  FORMAT(order_date, 'yyyy-MM') AS order_month,
  SUM(total_amount) AS monthly_revenue,
  SUM(total_amount) - LAG(SUM(total_amount)) OVER (ORDER BY FORMAT
FROM ORDERS
WHERE total_amount IS NOT NULL
GROUP BY FORMAT(order_date, 'yyyy-MM')
ORDER BY order_month;

--11. Cohort Analysis using CTE (signup year)
SELECT customer_id, name, YEAR(signup_date) AS signup_year
FROM CUSTOMERS;

--12. Cancelled/Returned Product Revenue Loss
SELECT order_id, status, total_amount FROM ORDERS
WHERE status = 'Cancelled' OR status = 'Returned';

--13. Customer City Heatmap
SELECT customer_id, city FROM CUSTOMERS;

--14. First & Last Order per Customer with ROW_NUMBER()
WITH RankedOrders AS (
  SELECT
```

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Results | Messages

	customer_id	name	signup_year
1	1	Alice	2022
2	2	Bob	2022
3	3	Charlie	2022
4	4	Diana	2022
5	5	Ethan	2022

--12. Cancelled/Returned Product Revenue Loss

SELECT order_id, status, total_amount FROM ORDERS

WHERE status = 'Cancelled' OR status = 'Returned';

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```
  FORMAT(order_date, 'yyyy-MM') AS order_month,
  SUM(total_amount) AS monthly_revenue,
  SUM(total_amount) - LAG(SUM(total_amount)) OVER (ORDER BY F
FROM ORDERS
WHERE total_amount IS NOT NULL
GROUP BY FORMAT(order_date, 'yyyy-MM')
ORDER BY order_month;

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FROM CUSTOMERS;

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SELECT order_id, status, total_amount FROM ORDERS
WHERE status = 'Cancelled' OR status = 'Returned';

--13. Customer City Heatmap
SELECT customer_id, city FROM CUSTOMERS;

--14. First & Last Order per Customer with ROW_NUMBER()
WITH RankedOrders AS (
  SELECT
```

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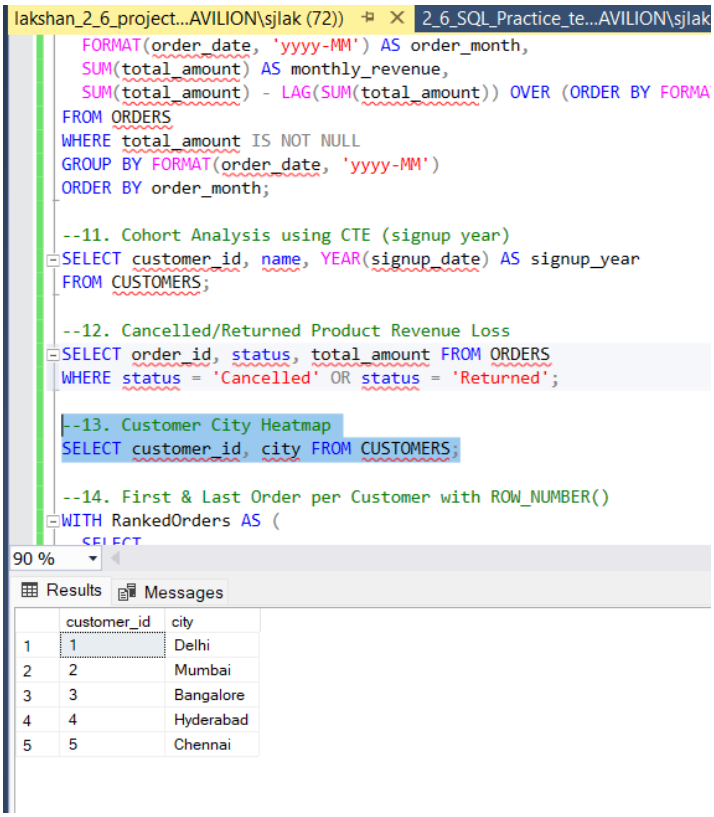
Results | Messages

	order_id	status	total_amount
1	103	Returned	175

--13. Customer City Heatmap

SELECT customer_id, city FROM CUSTOMERS;



--14. First & Last Order per Customer with ROW_NUMBER()

```
WITH RankedOrders AS (
  SELECT
    customer_id,
    order_id,
    order_date,
    ROW_NUMBER() OVER (PARTITION BY customer_id ORDER BY order_date ASC) AS rn_asc,
    ROW_NUMBER() OVER (PARTITION BY customer_id ORDER BY order_date DESC) AS rn_desc
  FROM ORDERS
)
SELECT customer_id, order_id, order_date, 'First Order' AS order_type
FROM RankedOrders WHERE rn_asc = 1
UNION
SELECT customer_id, order_id, order_date, 'Last Order'
FROM RankedOrders WHERE rn_desc = 1;
```

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```sql
--13. Customer City Heatmap
SELECT customer_id, city FROM CUSTOMERS;

--14. First & Last Order per Customer with ROW_NUMBER()
WITH RankedOrders AS (
  SELECT
    customer_id,
    order_id,
    order_date,
    ROW_NUMBER() OVER (PARTITION BY customer_id ORDER BY order_date ASC) AS rn_asc,
    ROW_NUMBER() OVER (PARTITION BY customer_id ORDER BY order_date DESC) AS rn_desc
  FROM ORDERS
)
SELECT customer_id, order_id, order_date, 'First Order' AS order_type
FROM RankedOrders WHERE rn_asc = 1
UNION
SELECT customer_id, order_id, order_date, 'Last Order'
FROM RankedOrders WHERE rn_desc = 1;


--15. NULL Handling: Orders with missing delivery/amount
SELECT order_id, delivery_date, total_amount FROM ORDERS
```

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Results | Messages

	customer_id	order_id	order_date	order_type
1	1	101	2023-01-10	First Order
2	1	103	2023-02-28	Last Order
3	2	102	2023-02-12	First Order
4	2	102	2023-02-12	Last Order
5	3	104	2023-03-05	First Order
6	3	104	2023-03-05	Last Order
7	4	105	2023-03-15	First Order
8	4	105	2023-03-15	Last Order

--15. NULL Handling: Orders with missing delivery/amount

SELECT order_id, delivery_date, total_amount FROM ORDERS

WHERE delivery_date IS NULL OR total_amount IS NULL;

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```sql
    order_date,
    ROW_NUMBER() OVER (PARTITION BY customer_id ORDER BY order_date
    ROW_NUMBER() OVER (PARTITION BY customer_id ORDER BY order_date
  FROM ORDERS
)
SELECT customer_id, order_id, order_date, 'First Order' AS order_typ
FROM RankedOrders WHERE rn_asc = 1
UNION
SELECT customer_id, order_id, order_date, 'Last Order'
FROM RankedOrders WHERE rn_desc = 1;


--15. NULL Handling: Orders with missing delivery/amount
SELECT order_id, delivery_date, total_amount FROM ORDERS
WHERE delivery_date IS NULL OR total_amount IS NULL;
```

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Results | Messages

	order_id	delivery_date	total_amount
1	105	NULL	120