BrightLight Data Analytics

SQL JOIN Practice Instructions

General Guidelines:

1. Use the provided CSV files:
   - orders_large.csv
   - products_large.csv
   - customers_large.csv
2. Import the datasets into a SQL database system of your choice (e.g., MySQL, PostgreSQL, SQLite, or Snowflake).
3. Use the appropriate JOINs (INNER JOIN, LEFT JOIN, RIGHT JOIN, FULL OUTER JOIN) to answer each question.
4. Ensure your query returns exactly the **expected columns** listed for each question.
5. Use aliases and format your SQL code for readability.
6. When using FULL OUTER JOIN, make sure your SQL engine supports it (e.g., MySQL does not support it natively — use UNION of LEFT JOIN and RIGHT JOIN if needed).

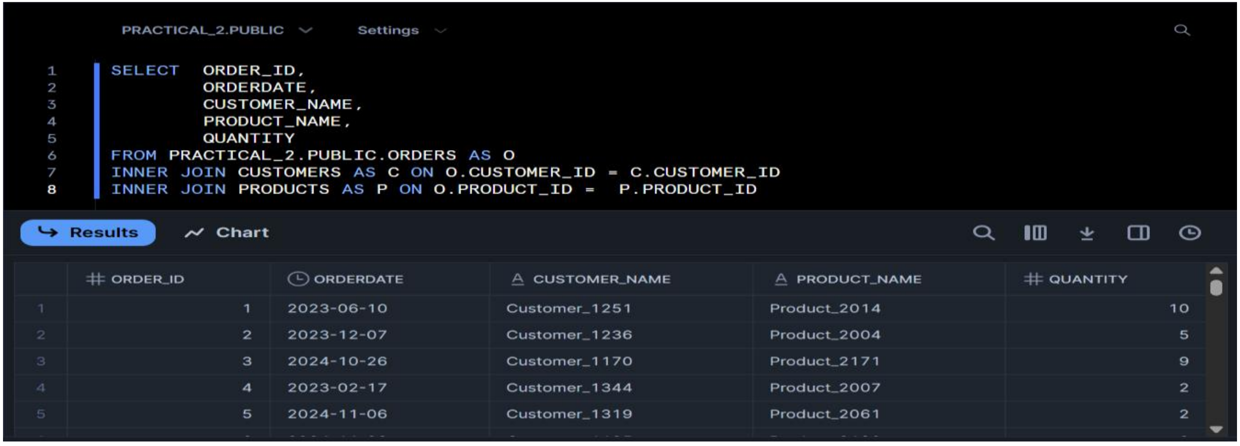
SQL JOIN Practice Questions

1. INNER JOIN: Orders with Customer and Product Names

Question:
List all orders along with the customer name and product name.

Expected Output Columns:

- OrderID, OrderDate, CustomerName, ProductName, Quantity



```
SELECT   ORDER_ID,
         ORDERDATE,
         CUSTOMER_NAME,
         PRODUCT_NAME,
         QUANTITY
FROM PRACTICAL_2.PUBLIC.ORDERS AS O
INNER JOIN CUSTOMERS AS C ON O.CUSTOMER_ID = C.CUSTOMER_ID
INNER JOIN PRODUCTS AS P ON O.PRODUCT_ID =  P.PRODUCT_ID
```

	ORDER_ID	ORDERDATE	CUSTOMER_NAME	PRODUCT_NAME	QUANTITY
1	1	2023-06-10	Customer_1251	Product_2014	10
2	2	2023-12-07	Customer_1236	Product_2004	5
3	3	2024-10-26	Customer_1170	Product_2171	9
4	4	2023-02-17	Customer_1344	Product_2007	2
5	5	2024-11-06	Customer_1319	Product_2061	2

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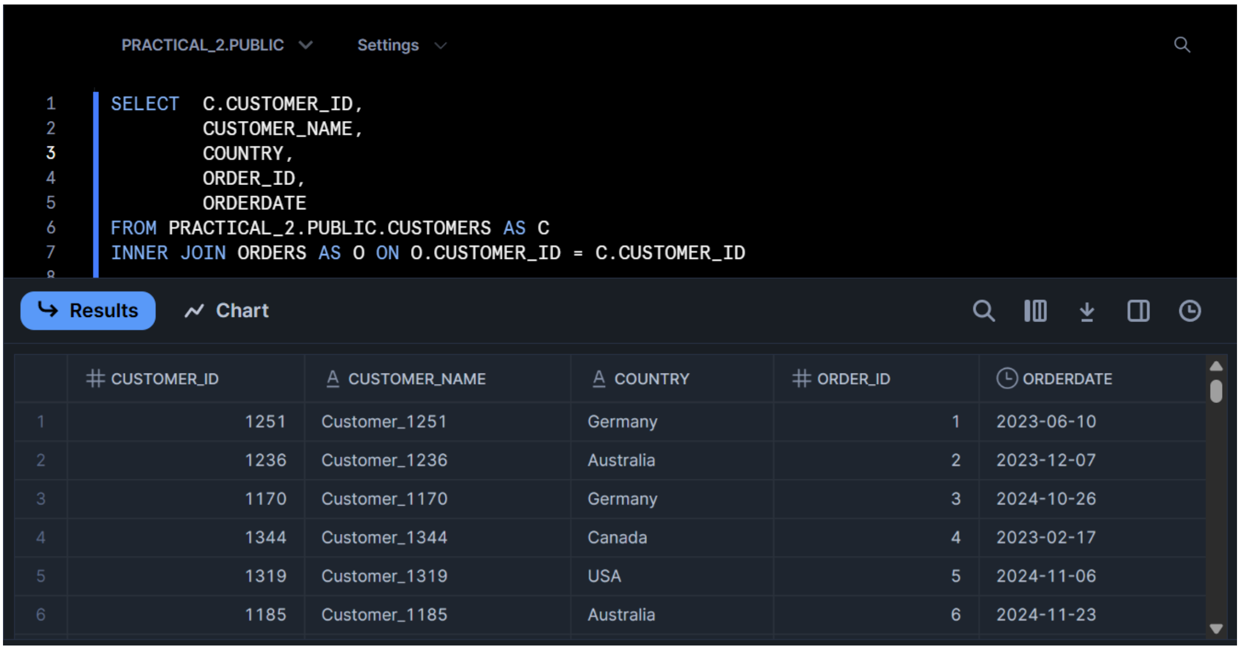
2. INNER JOIN: Customers Who Placed Orders

Question:

Which customers have placed at least one order?

Expected Output Columns:

- CustomerID, CustomerName, Country, OrderID, OrderDate



```
SELECT  C.CUSTOMER_ID,
        CUSTOMER_NAME,
        COUNTRY,
        ORDER_ID,
        ORDERDATE
FROM PRACTICAL_2.PUBLIC.CUSTOMERS AS C
INNER JOIN ORDERS AS O ON O.CUSTOMER_ID = C.CUSTOMER_ID
```

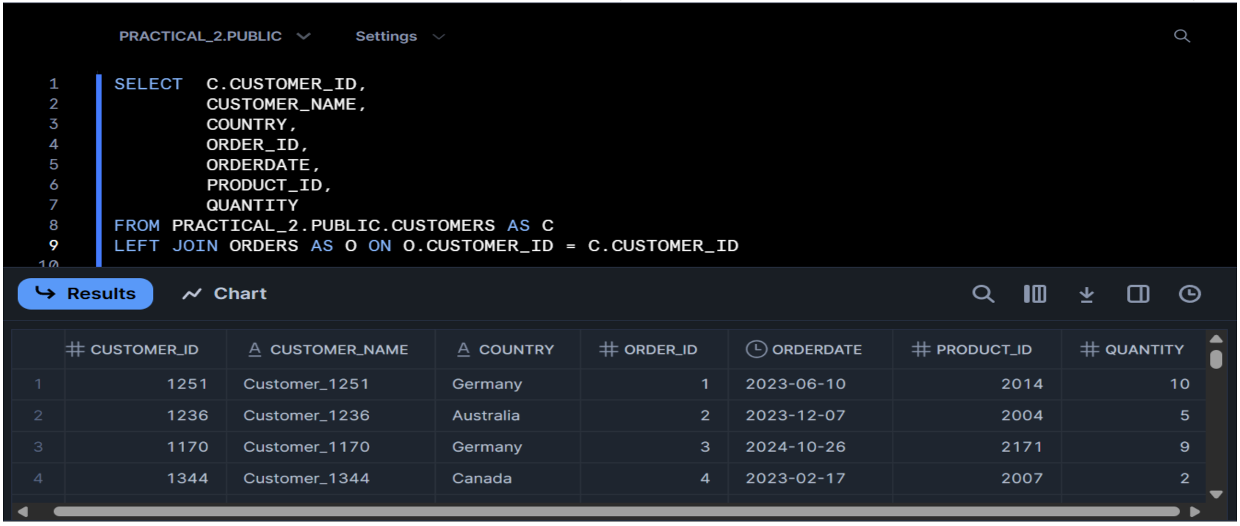
	CUSTOMER_ID	CUSTOMER_NAME	COUNTRY	ORDER_ID	ORDERDATE
1	1251	Customer_1251	Germany	1	2023-06-10
2	1236	Customer_1236	Australia	2	2023-12-07
3	1170	Customer_1170	Germany	3	2024-10-26
4	1344	Customer_1344	Canada	4	2023-02-17
5	1319	Customer_1319	USA	5	2024-11-06
6	1185	Customer_1185	Australia	6	2024-11-23

3. LEFT JOIN: All Customers and Their Orders

Question:
List all customers and any orders they might have placed. Include customers who have not placed any orders.

Expected Output Columns:

- CustomerID, CustomerName, Country, OrderID, OrderDate, ProductID, Quantity



```sql
SELECT  C.CUSTOMER_ID,
        CUSTOMER_NAME,
        COUNTRY,
        ORDER_ID,
        ORDERDATE,
        PRODUCT_ID,
        QUANTITY
FROM PRACTICAL_2.PUBLIC.CUSTOMERS AS C
LEFT JOIN ORDERS AS O ON O.CUSTOMER_ID = C.CUSTOMER_ID
```

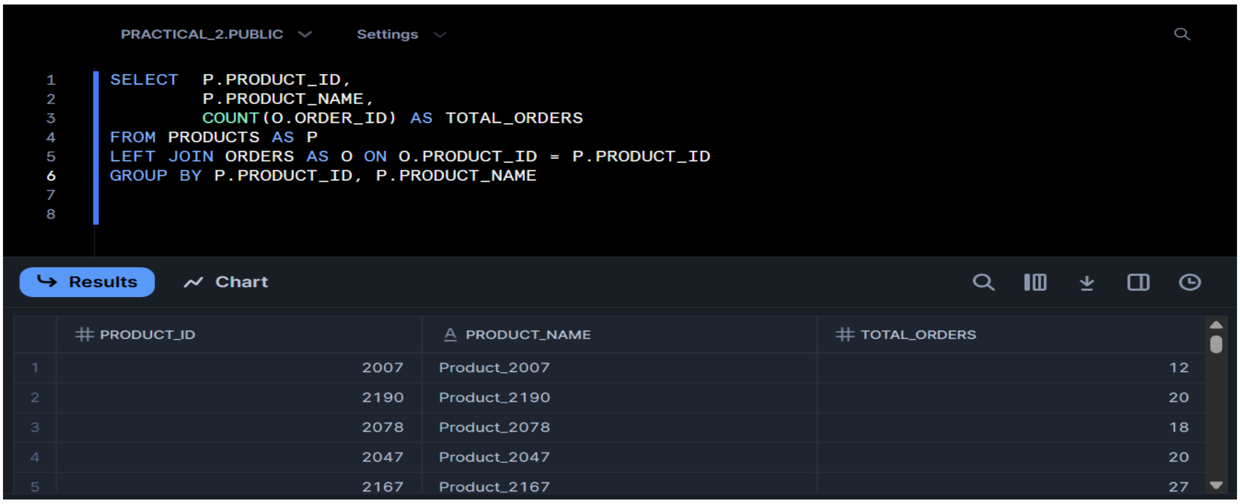
	CUSTOMER_ID	CUSTOMER_NAME	COUNTRY	ORDER_ID	ORDERDATE	PRODUCT_ID	QUANTITY
1	1251	Customer_1251	Germany	1	2023-06-10	2014	10
2	1236	Customer_1236	Australia	2	2023-12-07	2004	5
3	1170	Customer_1170	Germany	3	2024-10-26	2171	9
4	1344	Customer_1344	Canada	4	2023-02-17	2007	2

4. LEFT JOIN: Product Order Count

Question:
List all products and how many times each was ordered (if any).

Expected Output Columns:

- ProductID, ProductName, TotalOrders
  (TotalOrders is the count of how many times the product appears in orders)



```sql
SELECT  P.PRODUCT_ID,
        P.PRODUCT_NAME,
        COUNT(O.ORDER_ID) AS TOTAL_ORDERS
FROM PRODUCTS AS P
LEFT JOIN ORDERS AS O ON O.PRODUCT_ID = P.PRODUCT_ID
GROUP BY P.PRODUCT_ID, P.PRODUCT_NAME
```

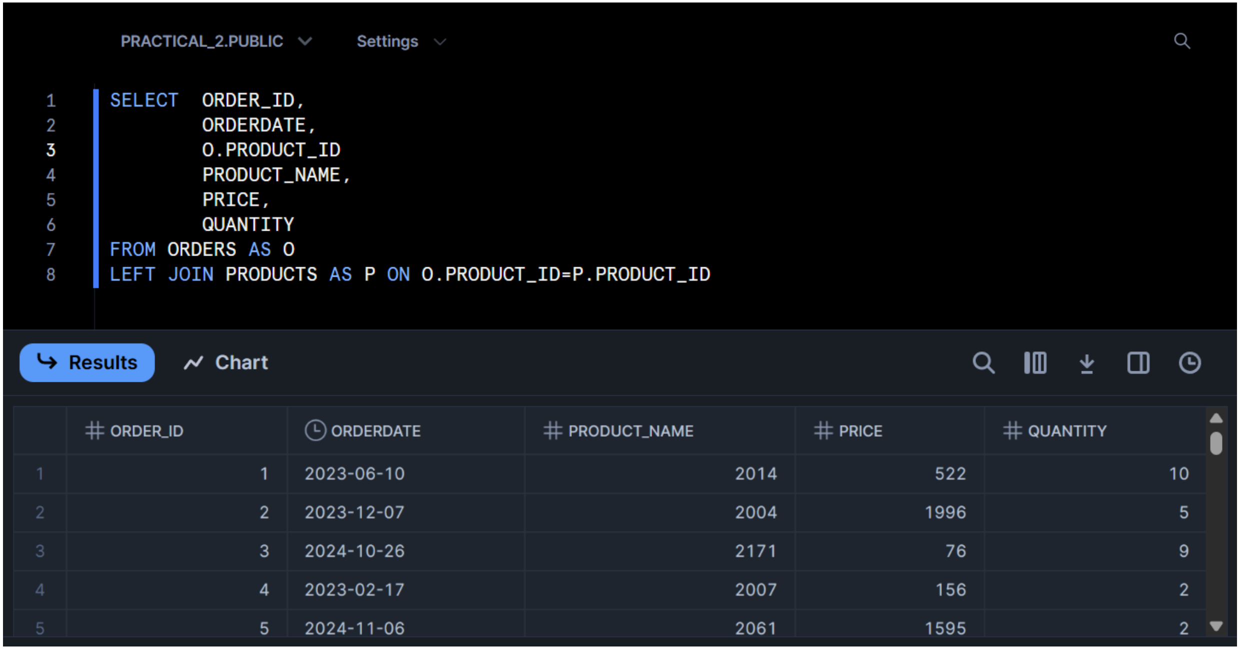
	PRODUCT_ID	PRODUCT_NAME	TOTAL_ORDERS
1	2007	Product_2007	12
2	2190	Product_2190	20
3	2078	Product_2078	18
4	2047	Product_2047	20
5	2167	Product_2167	27

5. RIGHT JOIN: Orders with Product Info (Include Products Not Ordered)

Question:
Find all orders along with product details, including any products that might not have been ordered.

Expected Output Columns:

- OrderID, OrderDate, ProductID, ProductName, Price, Quantity



```sql
SELECT  ORDER_ID,
        ORDERDATE,
        O.PRODUCT_ID
        PRODUCT_NAME,
        PRICE,
        QUANTITY
FROM ORDERS AS O
LEFT JOIN PRODUCTS AS P ON O.PRODUCT_ID=P.PRODUCT_ID
```

	ORDER_ID	ORDERDATE	PRODUCT_NAME	PRICE	QUANTITY
1	1	2023-06-10	2014	522	10
2	2	2023-12-07	2004	1996	5
3	3	2024-10-26	2171	76	9
4	4	2023-02-17	2007	156	2
5	5	2024-11-06	2061	1595	2

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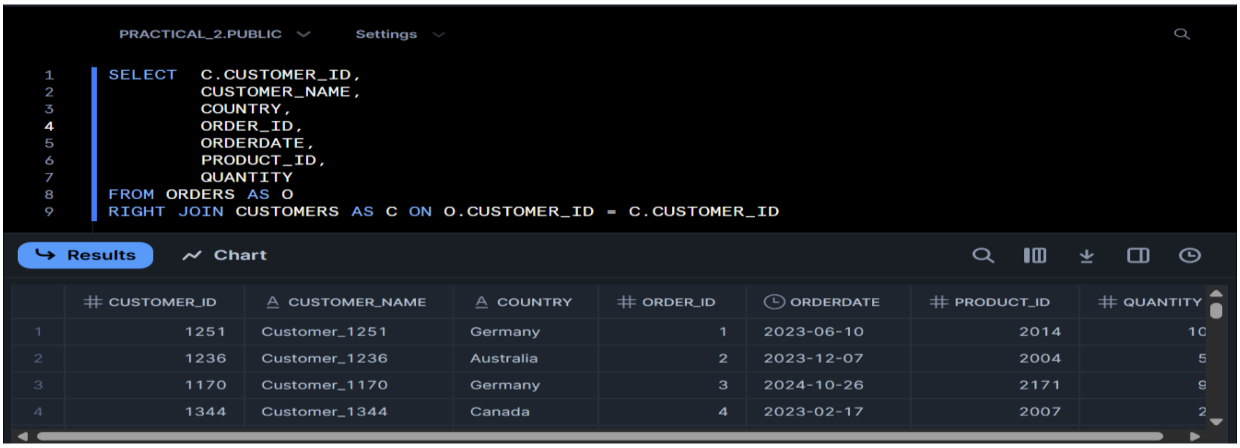
6. RIGHT JOIN: Customer Info with Orders (Include All Customers)

Question:
Which customers have made orders, and include customers even if they have never placed an order.

Expected Output Columns:

- CustomerID, CustomerName, Country, OrderID, OrderDate, ProductID, Quantity



```sql
SELECT  C.CUSTOMER_ID,
        CUSTOMER_NAME,
        COUNTRY,
        ORDER_ID,
        ORDERDATE,
        PRODUCT_ID,
        QUANTITY
FROM ORDERS AS O
RIGHT JOIN CUSTOMERS AS C ON O.CUSTOMER_ID = C.CUSTOMER_ID
```

	CUSTOMER_ID	CUSTOMER_NAME	COUNTRY	ORDER_ID	ORDERDATE	PRODUCT_ID	QUANTITY
1	1251	Customer_1251	Germany	1	2023-06-10	2014	10
2	1236	Customer_1236	Australia	2	2023-12-07	2004	5
3	1170	Customer_1170	Germany	3	2024-10-26	2171	9
4	1344	Customer_1344	Canada	4	2023-02-17	2007	2

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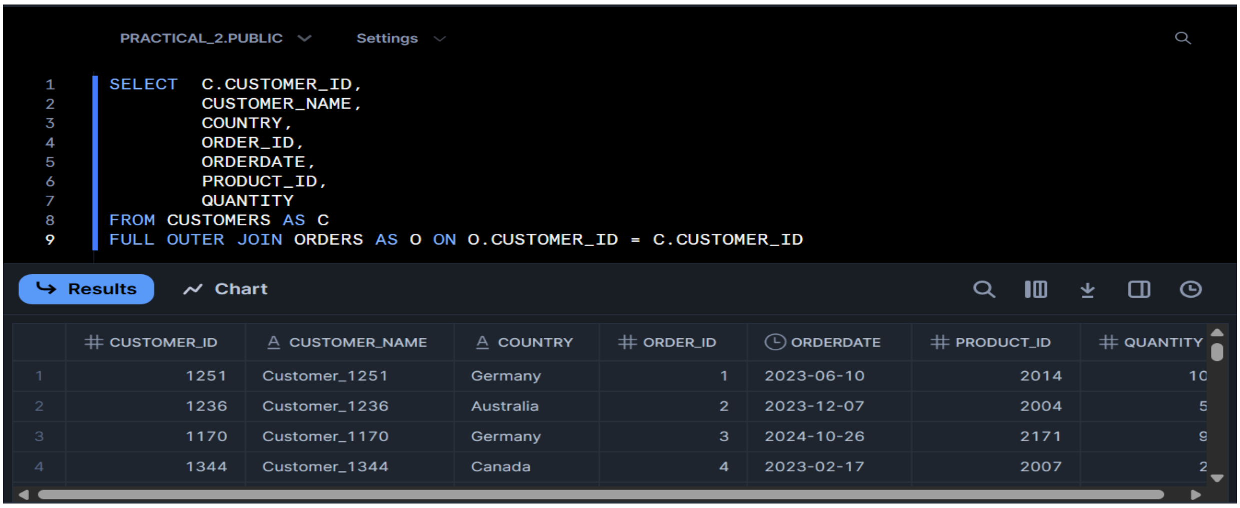
7. FULL OUTER JOIN: All Customers and All Orders

Question:

List all customers and orders, showing NULLs where customers have not ordered or where orders have no customer info.

Expected Output Columns:

- CustomerID, CustomerName, Country, OrderID, OrderDate, ProductID, Quantity



```
SELECT  C.CUSTOMER_ID,
        CUSTOMER_NAME,
        COUNTRY,
        ORDER_ID,
        ORDERDATE,
        PRODUCT_ID,
        QUANTITY
FROM CUSTOMERS AS C
FULL OUTER JOIN ORDERS AS O ON O.CUSTOMER_ID = C.CUSTOMER_ID
```

	CUSTOMER_ID	CUSTOMER_NAME	COUNTRY	ORDER_ID	ORDERDATE	PRODUCT_ID	QUANTITY
1	1251	Customer_1251	Germany	1	2023-06-10	2014	10
2	1236	Customer_1236	Australia	2	2023-12-07	2004	5
3	1170	Customer_1170	Germany	3	2024-10-26	2171	9
4	1344	Customer_1344	Canada	4	2023-02-17	2007	2

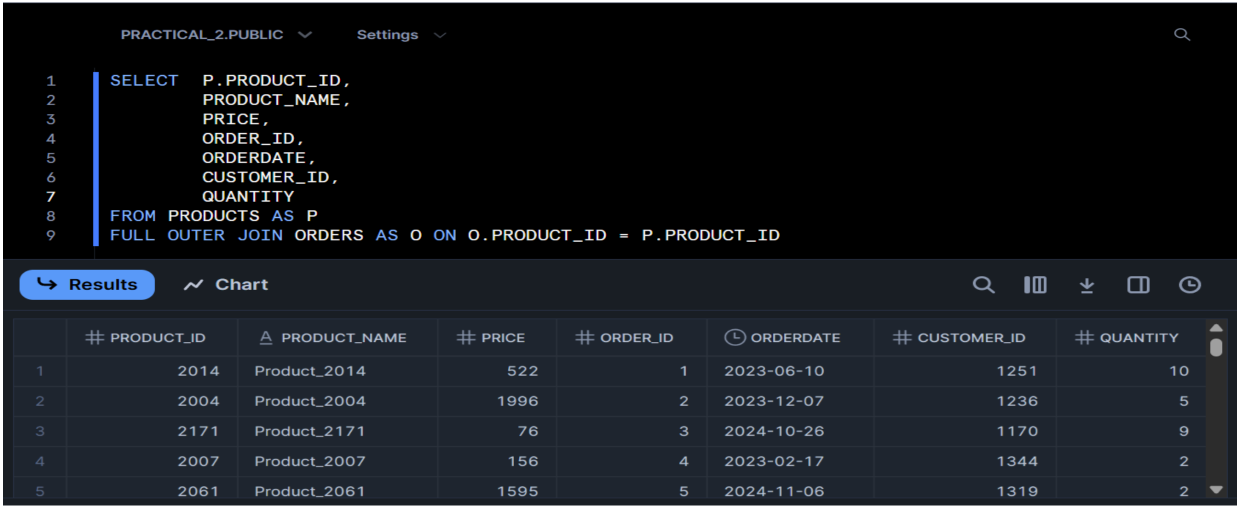
8.FULL OUTER JOIN: All Products and

Orders Question:

List all products and orders, showing NULLs where products were never ordered or orders are missing product info.

Expected Output Columns:

- ProductID, ProductName, Price, OrderID, OrderDate, CustomerID, Quantity



```
SELECT  P.PRODUCT_ID,
        PRODUCT_NAME,
        PRICE,
        ORDER_ID,
        ORDERDATE,
        CUSTOMER_ID,
        QUANTITY
FROM PRODUCTS AS P
FULL OUTER JOIN ORDERS AS O ON O.PRODUCT_ID = P.PRODUCT_ID
```

	PRODUCT_ID	PRODUCT_NAME	PRICE	ORDER_ID	ORDERDATE	CUSTOMER_ID	QUANTITY
1	2014	Product_2014	522	1	2023-06-10	1251	10
2	2004	Product_2004	1996	2	2023-12-07	1236	5
3	2171	Product_2171	76	3	2024-10-26	1170	9
4	2007	Product_2007	156	4	2023-02-17	1344	2
5	2061	Product_2061	1595	5	2024-11-06	1319	2