SQL Clauses

1. WHERE Clause

Purpose:

Used to filter records that fulfill a specific condition.

Used With:

- SELECT
- UPDATE
- DELETE

Syntax:

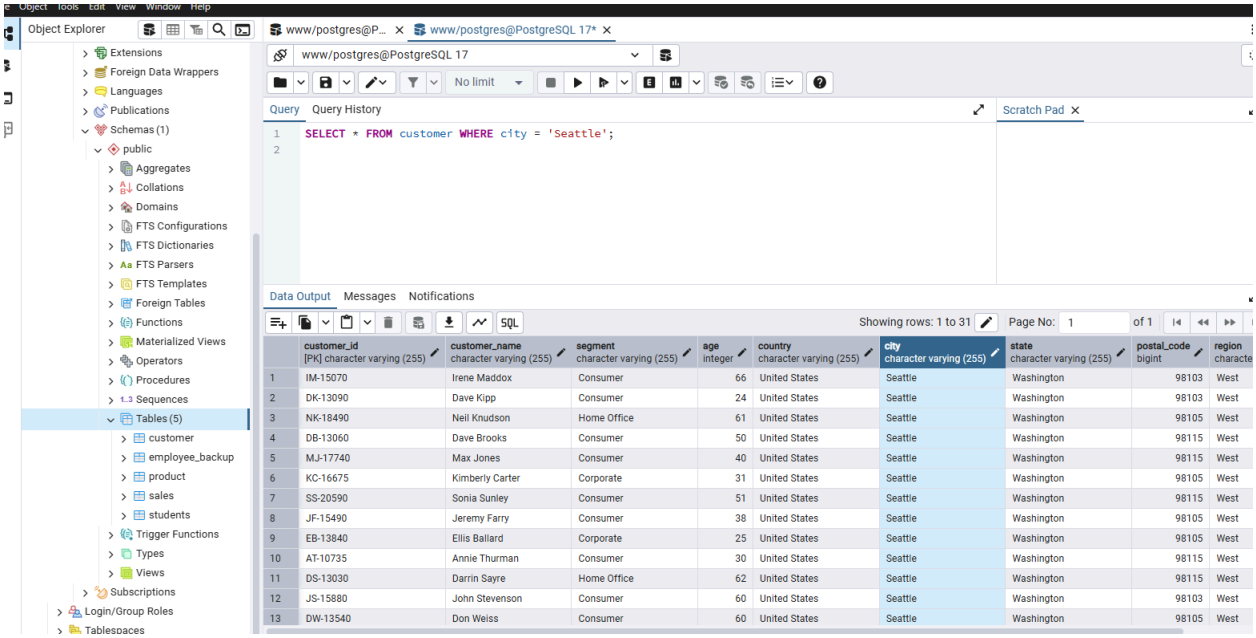
SELECT column1, column2, ...

FROM table_name

WHERE condition;

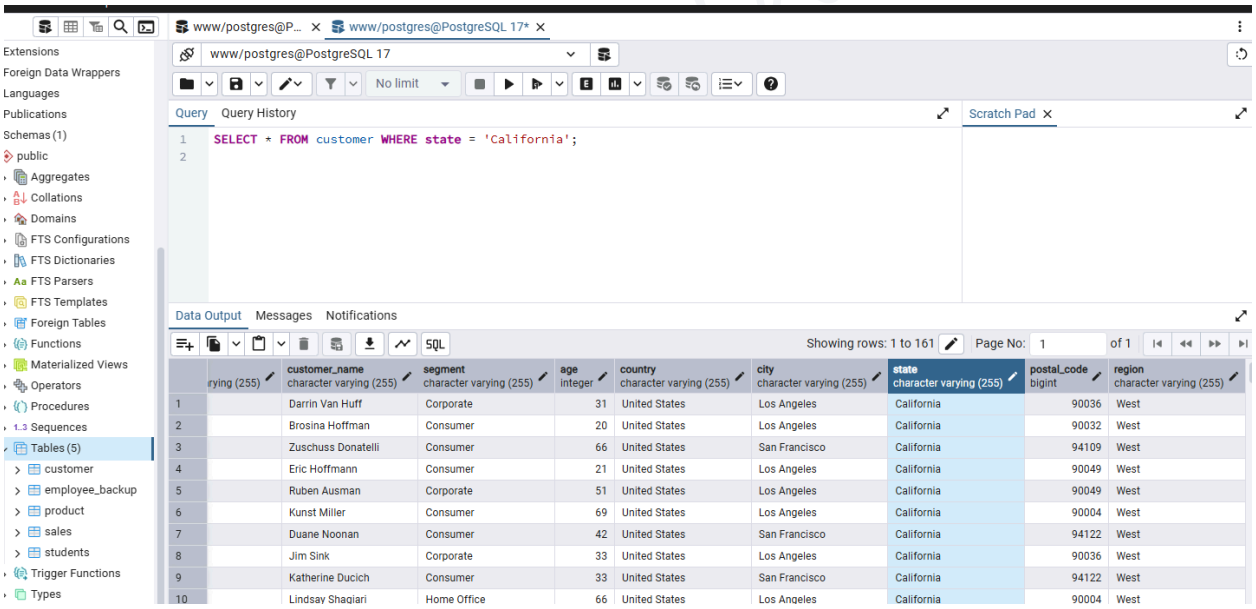
Examples:

SELECT * FROM customer WHERE city = 'Seattle';



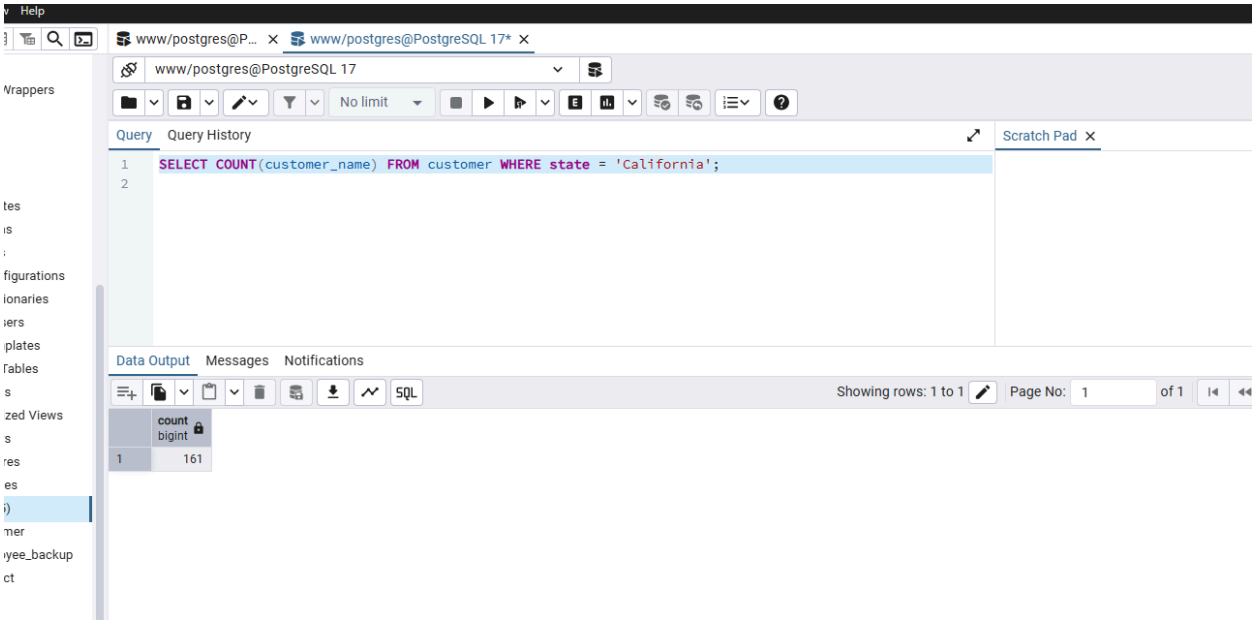
	customer_id [PK] character varying (255)	customer_name character varying (255)	segment character varying (255)	age integer	country character varying (255)	city character varying (255)	state character varying (255)	postal_code bigint	region
1	IM-15070	Irene Maddox	Consumer	66	United States	Seattle	Washington	98103	West
2	DK-13090	Dave Kipp	Consumer	24	United States	Seattle	Washington	98103	West
3	NK-18490	Neil Knudson	Home Office	61	United States	Seattle	Washington	98105	West
4	DB-13060	Dave Brooks	Consumer	50	United States	Seattle	Washington	98115	West
5	MJ-17740	Max Jones	Consumer	40	United States	Seattle	Washington	98115	West
6	KC-16675	Kimberly Carter	Corporate	31	United States	Seattle	Washington	98105	West
7	SS-20590	Sonia Sunley	Consumer	51	United States	Seattle	Washington	98115	West
8	JF-15490	Jeremy Farry	Consumer	38	United States	Seattle	Washington	98105	West
9	EB-13840	Ellis Ballard	Corporate	25	United States	Seattle	Washington	98105	West
10	AT-10735	Annie Thurman	Consumer	30	United States	Seattle	Washington	98115	West
11	DS-13030	Darrin Sayre	Home Office	62	United States	Seattle	Washington	98115	West
12	JS-15880	John Stevenson	Consumer	60	United States	Seattle	Washington	98103	West
13	DW-13540	Don Weiss	Consumer	60	United States	Seattle	Washington	98105	West

SELECT * FROM customer WHERE state = 'California';



	customer_name character varying (255)	segment character varying (255)	age integer	country character varying (255)	city character varying (255)	state character varying (255)	postal_code bigint	region character varying (255)
1	Darrin Van Huff	Corporate	31	United States	Los Angeles	California	90036	West
2	Brosina Hoffman	Consumer	20	United States	Los Angeles	California	90032	West
3	Zuschuss Donatelli	Consumer	66	United States	San Francisco	California	94109	West
4	Eric Hoffmann	Consumer	21	United States	Los Angeles	California	90049	West
5	Ruben Ausman	Corporate	51	United States	Los Angeles	California	90049	West
6	Kunst Miller	Consumer	69	United States	Los Angeles	California	90004	West
7	Duane Noonan	Consumer	42	United States	San Francisco	California	94122	West
8	Jim Sink	Corporate	33	United States	Los Angeles	California	90036	West
9	Katherine Ducich	Consumer	33	United States	San Francisco	California	94122	West
10	Lindsay Shagiari	Home Office	66	United States	Los Angeles	California	90004	West

SELECT COUNT(customer_name) FROM customers WHERE state = 'California';



2. ORDER BY Clause

Purpose:

Used to sort the result set in **ascending (ASC)** or **descending (DESC)** order.

Syntax:

SELECT column1, column2, ...

FROM table_name

[WHERE condition]

ORDER BY column1 [ASC | DESC], column2 [ASC | DESC], ...;

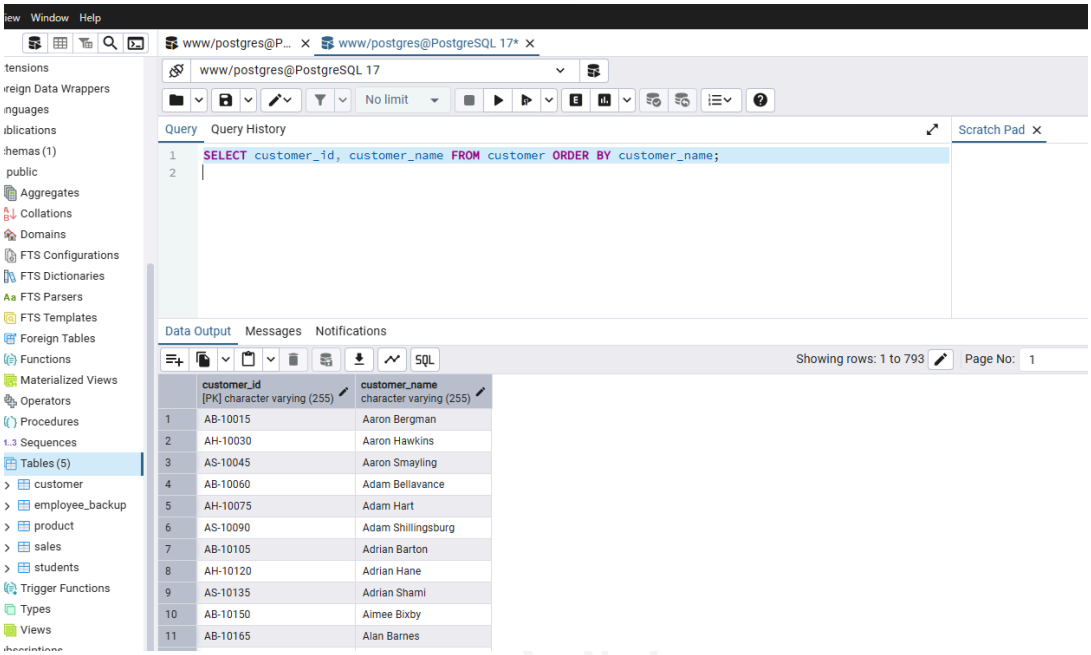
Notes:

- Default is ASC (ascending).

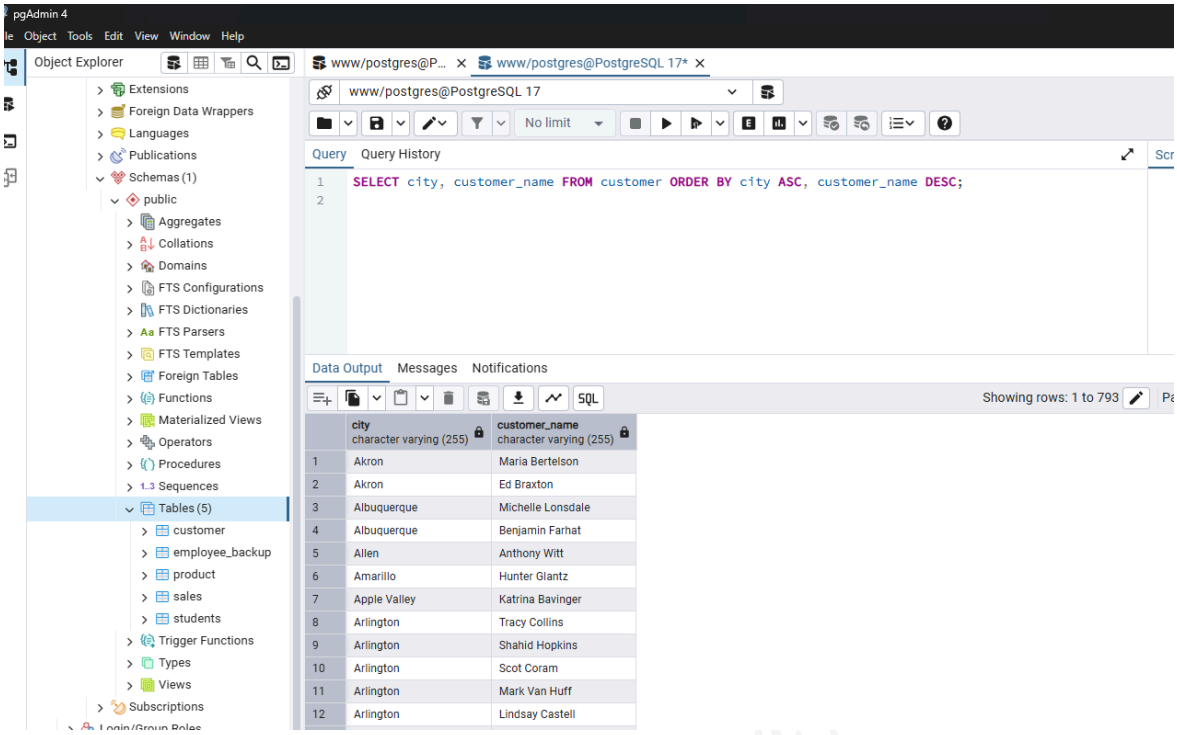
- You can sort by one or more columns.

Examples:

SELECT customer_id, customer_name FROM customer ORDER BY customer_name;



SELECT city, customer_name FROM customer ORDER BY city ASC, customer_name DESC;



This query **retrieves a list of cities and customer names** from the customer table, and **sorts** the results:

- First by city in **ascending** (A → Z) order
- Then by customer_name in **descending** (Z → A) order **within each city**

3. GROUP BY Clause

Purpose:

The GROUP BY clause is used to **split rows into groups** based on one or more columns. It is commonly used with **aggregate functions** such as:

- COUNT() – counts number of rows
- SUM() – adds values

- AVG() – calculates average
- MIN() / MAX() – finds minimum or maximum value

Each group returns **one result row**.

Syntax:

SELECT aggregate_function(column), column2, ...

FROM table_name

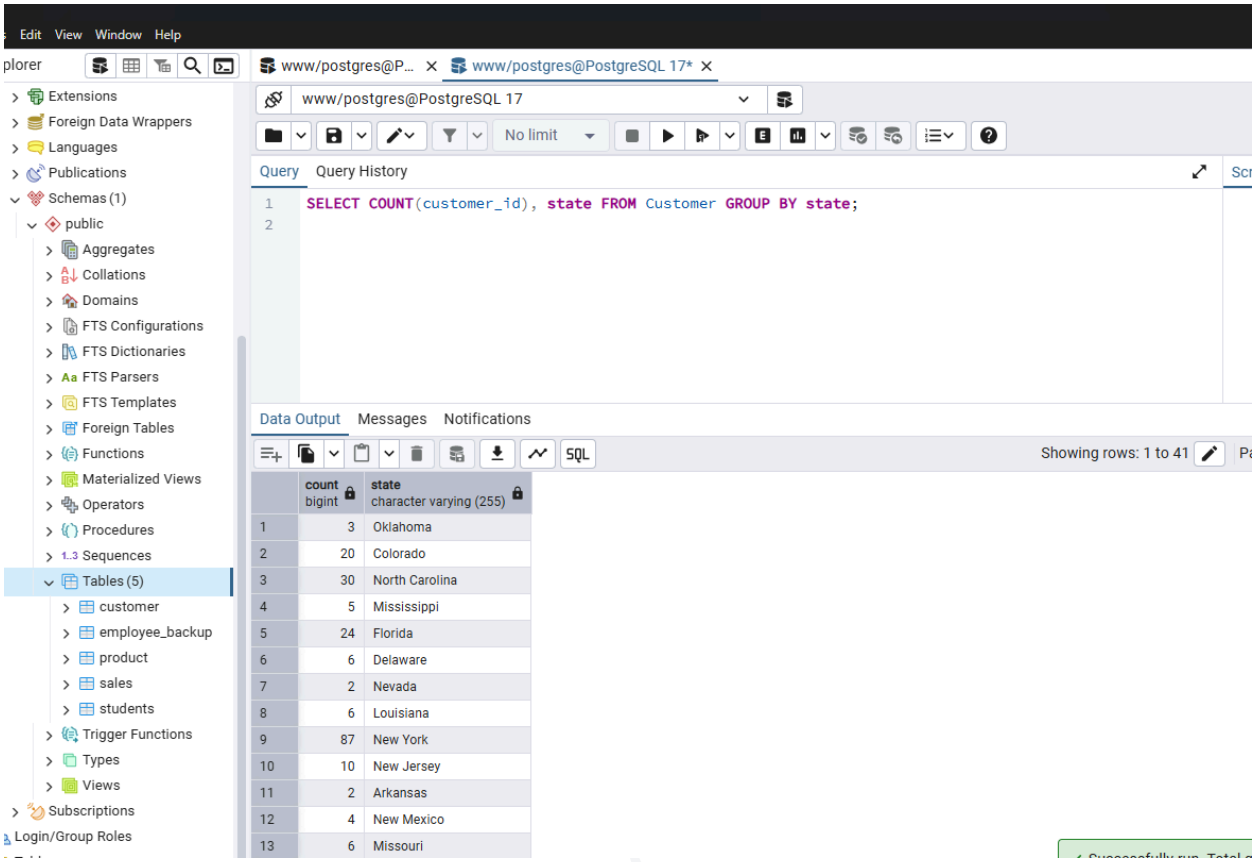
WHERE condition

GROUP BY column2, column3, ...

ORDER BY column2;

Example:

SELECT COUNT(customer_id), state FROM Customer GROUP BY state;



4. SELECT DISTINCT Clause

Purpose:

Used to return **only unique (non-duplicate)** values.

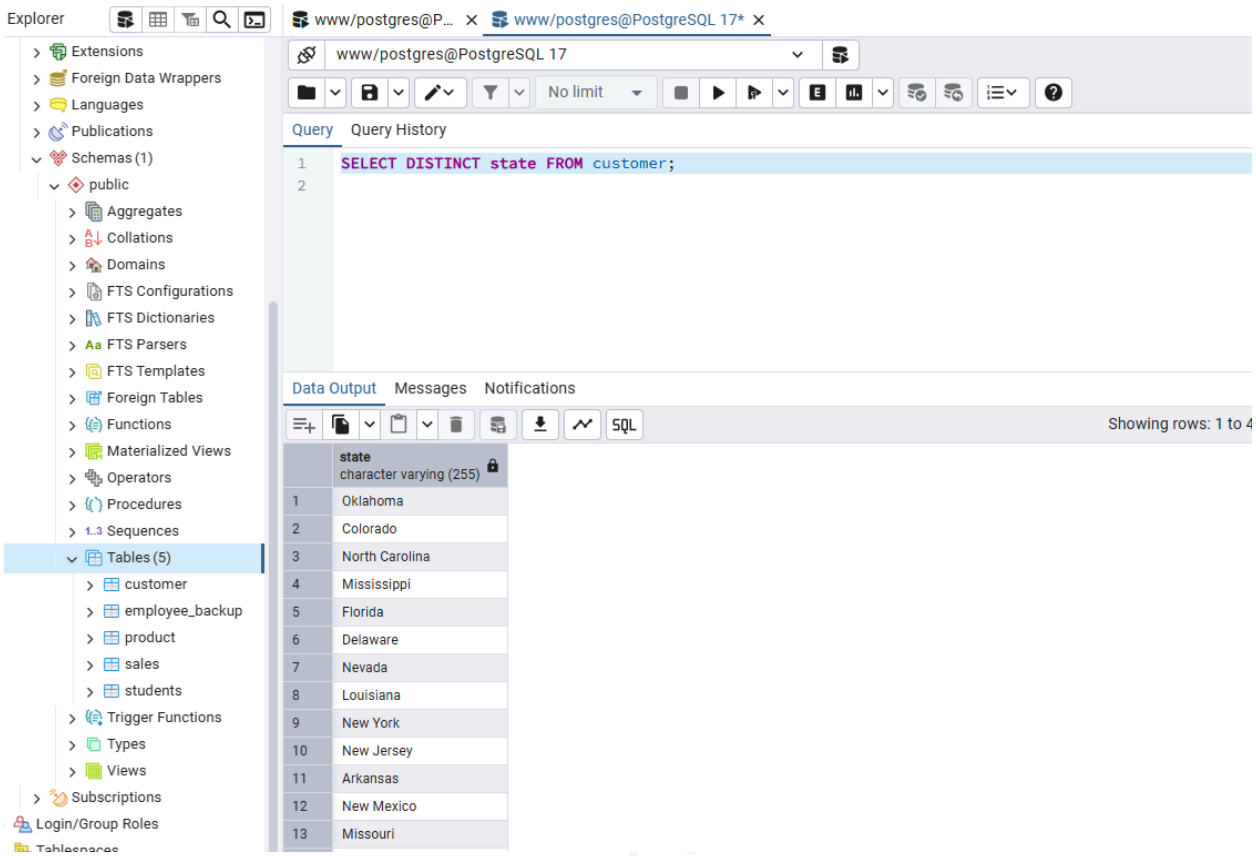
Syntax:

SELECT DISTINCT column1, column2, ...

FROM table_name;

Example:

SELECT DISTINCT state FROM customer;



5. LIMIT Clause *(PostgreSQL-specific)*

Purpose:

Limits the number of rows returned by the query.

Syntax:

SELECT column1, column2, ...

FROM table_name

ORDER BY column

LIMIT number;

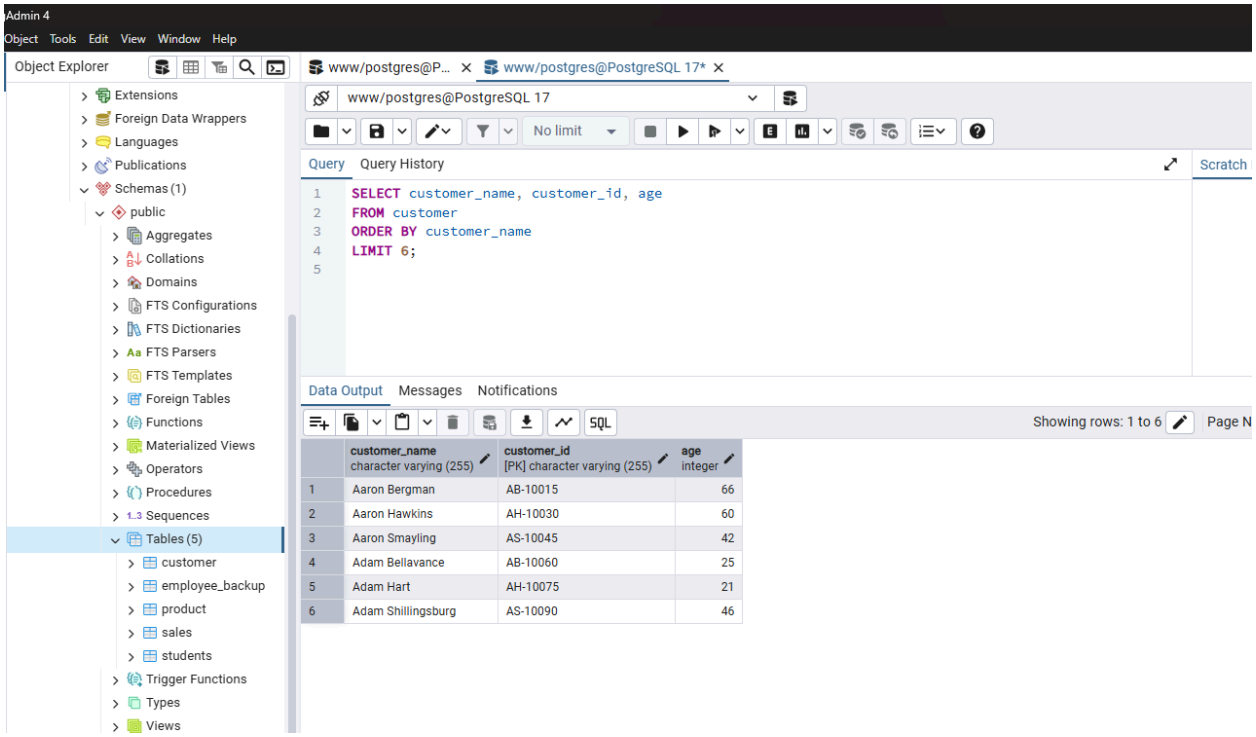
Example:

```
SELECT customer_name, customer_id, age

FROM customer

ORDER BY customer_name

LIMIT 6;
```



Summary Table

Clause	Use Case
WHERE	Filter records based on conditions
ORDER BY	Sort results in ASC or DESC order
GROUP BY	Group data for aggregate functions
DISTINCT	Select only unique values
LIMIT	Restrict number of records returned (PostgreSQL)

Practice SQL Questions

GROUP BY Clause

1. Count the number of customers in each state.
2. Show the average discount given per product category.

WHERE + GROUP BY

3. Count the number of customers per state in the "West" region.
4. Get the total sales for products where quantity is more than 5.

ORDER BY Clause

5. List all orders sorted by sales in descending order.

6. Display cities and customer names, sorted by city (A-Z) and customer name (Z-A).

DISTINCT Clause

7. List all unique product categories.

8. Get all unique combinations of segment and region from orders.

LIMIT Clause

9. Show the top 10 customers with the highest total sales.

10. Display the first 5 orders sorted by order date.

You can download the complete set of SQL notes and practice files from this GitHub repository:
👉 **SQL-resources-and-tutorials by akshay-dhage**