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Join/postgres@PostgreSQL 17

Query Query History

```

1  -- First I need to create the customers table:
2
3  create table customers (
4      customer_id INT,
5      first_name VARCHAR (100),
6      last_name VARCHAR (100),
7      email VARCHAR(100),
8      join_date DATE
9  );
10
11 --Next, I need to import the customers csv file from my harddrive with the below query
12
13 COPY customers(customer_id, first_name, last_name, email, join_date)
14 FROM 'c:\uk september 2023\18Analytics\postgresql\SQL Project\March 2025\Join\customers.csv'
15 DELIMITER ',' -- ensures values are separated correctly.

```

Data Output Messages Notifications

Showing rows: 1 to 4 Page No: 1 of 1

	customer_id	first_name	last_name	email	join_date
1	101	John	Doe	john.doe@email.com	2023-01-15
2	102	Jane	Smith	jane.smith@email.com	2022-11-23
3	103	Alice	Johnson	alice.johnson@email.com	2023-03-10
4	104	Bob	Brown	bob.brown@email.com	2022-05-04

Total rows: 4 Query complete 00:00:00.186 CRLF Ln 20, Col 1

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Query Query History

```

12
13 COPY customers(customer_id, first_name, last_name, email, join_date)
14 FROM 'c:\uk september 2023\18Analytics\postgresql\SQL Project\March 2025\Join\customers.csv'
15 DELIMITER ',' -- ensures values are separated correctly.
16 CSV HEADER; --tells PostgreSQL to ignore the first row (column names).
17
18 -- Next I need to test or confirm if all the data have been uploaded unto the table successfully
19
20 SELECT * FROM customers;
21
22 --Note: it worked successfully.
23
24
25
26

```

Data Output Messages Notifications

Showing rows: 1 to 4 Page No: 1 of 1

	customer_id	first_name	last_name	email	join_date
1	101	John	Doe	john.doe@email.com	2023-01-15
2	102	Jane	Smith	jane.smith@email.com	2022-11-23
3	103	Alice	Johnson	alice.johnson@email.com	2023-03-10
4	104	Bob	Brown	bob.brown@email.com	2022-05-04

Total rows: 4 Query complete 00:00:00.186 CRLF Ln 20, Col 1

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Query Query History

```

27
28 -- Second I need to create the orders table:
29
30 create table orders (
31     order_id INT Primary Key,
32     customer_id INT,
33     order_date DATE,
34     product_id INT,
35     quantity INT,
36     total_amount INT
37 );
38
39 --Next, I need to import the orders csv file from my harddrive with the below query
40
41 COPY orders(order_id, customer_id, order_date, product_id, quantity, total_amount)

```

Data Output Messages Notifications

Showing rows: 1 to 5 Page No: 1 of 1

	order_id [PK]	customer_id	order_date	product_id	quantity	total_amount
1	1	101	2023-01-20	1001	2	500
2	2	102	2023-02-11	1002	1	200
3	3	103	2023-03-05	1003	3	300
4	4	101	2023-04-10	1004	4	600
5	5	104	2023-05-21	1001	1	250

Total rows: 5 Query complete 00:00:00.157 CRLF Ln 51, Col 1

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Query Query History

```
38
39 --Next, I need to import the orders csv file from my harddrive with the below query
40
41 COPY orders(order_id, customer_id, order_date, product_id, quantity, total_amount)
42 FROM 'c:\uk september 2023\10Analytics\postgresql\SQL Project\March 2025\Join\orders.csv'
43 DELIMITER ',' -- ensures values are separated correctly.
44 CSV HEADER; --tells PostgreSQL to ignore the first row (column names).
45
46 -- Next I need to test or confirm if al the data have been uploaded unto the table successfully
47
48 SELECT * FROM orders;
49
50 --Note: it worked successfully.
51
52
```

Data Output Messages Notifications

Showing rows: 1 to 5 Page No: 1 of 1

	order_id [PK] integer	customer_id integer	order_date date	product_id integer	quantity integer	totalAmount integer
1	1	101	2023-01-20	1001	2	500
2	2	102	2023-02-11	1002	1	200
3	3	103	2023-03-05	1003	3	300
4	4	101	2023-04-10	1004	4	600
5	5	104	2023-05-21	1001	1	250

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Query Query History

```
54 -- Third I need to create the products table:
55
56 create table products (
57     product_id INT,
58     product_name VARCHAR (50),
59     category VARCHAR (50),
60     price INT
61 );
62
63 --Next, I need to import the products csv file from my harddrive with the below query
64
65 COPY products(product_id, product_name, category, price)
66 FROM 'c:\uk september 2023\10Analytics\postgresql\SQL Project\March 2025\Join\products.csv'
67 DELIMITER ',' -- ensures values are separated correctly.
68 CSV HEADER; --tells PostgreSQL to ignore the first row (column names)
69
```

Data Output Messages Notifications

Showing rows: 1 to 4 Page No: 1 of 1

	product_id integer	product_name character varying (50)	category character varying (50)	price integer
1	1001	Laptop	Electronics	250
2	1002	Smartphone	Electronics	200
3	1003	Headphones	Accessories	100
4	1004	Tablet	Electronics	150

Total rows: 4 Query complete 00:00:00.164 CRLF Ln 72, Col 24

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Query Query History

```
59     category VARCHAR (50),
60     price INT
61 );
62
63 --Next, I need to import the products csv file from my harddrive with the below query
64
65 COPY products(product_id, product_name, category, price)
66 FROM 'c:\uk september 2023\10Analytics\postgresql\SQL Project\March 2025\Join\products.csv'
67 DELIMITER ',' -- ensures values are separated correctly.
68 CSV HEADER; --tells PostgreSQL to ignore the first row (column names).
69
70 -- Next I need to test or confirm if al the data have been uploaded unto the table successfully
71
72 SELECT * FROM products;
73
```

Data Output Messages Notifications

Showing rows: 1 to 4 Page No: 1 of 1

	product_id integer	product_name character varying (50)	category character varying (50)	price integer
1	1001	Laptop	Electronics	250
2	1002	Smartphone	Electronics	200
3	1003	Headphones	Accessories	100
4	1004	Tablet	Electronics	150

Total rows: 4 Query complete 00:00:00.164 CRLF Ln 71, Col 1

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Query Query History

```

75
76
77
78 -- Lastly I need to create the payments table:
79
80 create table payments (
81     payment_id INT,
82     order_id INT,
83     payment_date DATE,
84     payment_method VARCHAR(50),
85     payment_status VARCHAR(50)
86 );
87
88 --Next, I need to import the payments csv file from my harddrive with the below query
89

```

Data Output Messages Notifications

Showing rows: 1 to 5 Page No: 1 of 1

	payment_id integer	order_id integer	payment_date date	payment_method character varying (50)	payment_status character varying (50)
1	10001	1	2023-01-22	Credit Card	Completed
2	10002	2	2023-02-12	PayPal	Failed
3	10003	3	2023-03-06	Credit Card	Completed
4	10004	4	2023-04-15	Bank Transfer	Pending
5	10005	5	2023-05-22	PayPal	Completed

Total rows: 5 Query complete 00:00:00.266 CRLF Ln 96, Col 1

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Query Query History

```

86
87
88 --Next, I need to import the payments csv file from my harddrive with the below query
89
90 COPY payments(payment_id, order_id, payment_date, payment_method, payment_status)
91 FROM 'c:\uk september 2023\10Analytics\postgresql\SQL Project\March 2025\Join\payments.csv'
92 DELIMITER ',' -- ensures values are separated correctly.
93 CSV HEADER; --tells PostgreSQL to ignore the first row (column names).
94
95 -- Next I need to test or confirm if all the data have been uploaded unto the table successfully
96
97 SELECT * FROM payments;
98
99 --Note: it worked successfully.
100

```

Data Output Messages Notifications

Showing rows: 1 to 5 Page No: 1 of 1

	payment_id integer	order_id integer	payment_date date	payment_method character varying (50)	payment_status character varying (50)
1	10001	1	2023-01-22	Credit Card	Completed
2	10002	2	2023-02-12	PayPal	Failed
3	10003	3	2023-03-06	Credit Card	Completed
4	10004	4	2023-04-15	Bank Transfer	Pending
5	10005	5	2023-05-22	PayPal	Completed

Total rows: 5 Query complete 00:00:00.266 CRLF Ln 96, Col 1

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Join/postgres@PostgreSQL 17

Query Query History

```

101
102 --Business Questions:
103
104 --Q1: Find the order details (order_id, order_date, product_name, quantity) for each customer
105 -- who has placed an order.
106
107 -- To find order details for each customer, lets find out the correct table to use:
108 select * from customers; -- wrong table, it does not contains the order details
109 select * from orders; -- correct table, it contains order_id, order_date and quantity
110 select * from payments; -- wrong table, it does not contains product_name
111 select * from products; -- correct table, it contains product_name
112
113 --therefore, orders and products tables are needed to answer above question.
114
115 select orders.order_id, orders.order_date, products.product_name, orders.quantity

```

Data Output Messages Notifications

Showing rows: 1 to 5 Page No: 1 of 1

	payment_id integer	order_id integer	payment_date date	payment_method character varying (50)	payment_status character varying (50)
1	10001	1	2023-01-22	Credit Card	Completed
2	10002	2	2023-02-12	PayPal	Failed
3	10003	3	2023-03-06	Credit Card	Completed
4	10004	4	2023-04-15	Bank Transfer	Pending
5	10005	5	2023-05-22	PayPal	Completed

Total rows: 5 Query complete 00:00:00.266 CRLF Ln 96, Col 1

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Query

```
--Q1: Find the order details (order_id, order_date, product_name, quantity) for each customer
-- who has placed an order.

-- To find order details for each customer, lets find out the correct table to use:
select * from customers; -- wrong table, it does not contains the order details
select * from orders; -- correct table, it contains order_id, order_date and quantity
select * from payments; -- wrong table, it does not contains product_name
select * from products -- correct table, it contains product_name

--therefore, orders and products tables are needed to answer above question.

select orders.order_id, orders.order_date, products.product_name, orders.quantity
from orders
inner join products on products.product_id = orders.product_id
order by order_id desc;
```

Data Output

order_id	order_date	product_name	quantity
5	2023-05-21	Laptop	1
4	2023-04-10	Tablet	4
3	2023-03-05	Headphones	3
2	2023-02-11	Smartphone	1
1	2023-01-20	Laptop	2

Total rows: 5 Query complete 00:00:00.183

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Query

```
--Q2: List all customers and the details of their orders, including customers who have not placed
-- any orders.

-- To list all customers and the details of their orders,lets find out the correct table to use:
select * from customers; -- yes, correct table, it contains the customers details
select * from orders; -- yes, correct table, it contains order_id, order_date and quantity
select * from payments; -- wrong table, not needed
select * from products -- wrong table, not needed

--therefore, customers and orders tables are needed to answer above question.

select customers.customer_id, concat(customers.first_name, ' ', customers.last_name) as customer_name,
orders.order_id, orders.order_date, orders.quantity
from customers
left join orders on customers.customer_id = orders.customer_id
order by customer_id;
```

Data Output

customer_id	customer_name	order_id	order_date	quantity
101	John Doe	1	2023-01-20	2
101	John Doe	4	2023-04-10	4
102	Jane Smith	2	2023-02-11	1
103	Alice Johnson	3	2023-03-05	3
104	Bob Brown	5	2023-05-21	1

Total rows: 5 Query complete 00:00:00.195

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Query

```
select * from orders; -- yes, correct table, it contains order_id, order_date and quantity
select * from payments; -- wrong table, not needed
select * from products -- wrong table, not needed

--therefore, customers and orders tables are needed to answer above question.

select customers.customer_id, concat(customers.first_name, ' ', customers.last_name) as customer_name,
orders.order_id, orders.order_date, orders.quantity
from customers
left join orders on customers.customer_id = orders.customer_id
order by customer_id

--Or
SELECT
```

Data Output

customer_id	customer_name	order_id	order_date	quantity
101	John Doe	1	2023-01-20	2
101	John Doe	4	2023-04-10	4
102	Jane Smith	2	2023-02-11	1
103	Alice Johnson	3	2023-03-05	3
104	Bob Brown	5	2023-05-21	1

Total rows: 5 Query complete 00:00:00.195

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Query Query History

```

152
153 --Q3: Find the total amount spent by each customer on their orders, including the product names
154 -- they bought.
155
156 -- To find the total amount spent by each customer on their orders, lets find out the correct table to use:
157 select * from customers; -- yes, correct table, needed for customers details
158 select * from orders; -- yes, correct table, needed for total_amount spent
159 select * from payments; -- wrong table, not needed
160 select * from products -- correct table, needed to show product name
161
162 --therefore, customers and orders tables are needed to answer above question.
163
164 select customers.customer_id, concat(customers.first_name, ' ', customers.last_name),
165 products.product_name, sum(orders.total_amount) as total_amount
166 from orders
167
168
169
170
171

```

Data Output Messages Notifications

Showing rows: 1 to 5 Page No: 1 of 1

	customer_id integer	concat text	product_name character varying (50)	total_amount bigint
1	101	John Doe	Laptop	500
2	101	John Doe	Tablet	600
3	104	Bob Brown	Laptop	250
4	102	Jane Smith	Smartphone	200
5	103	Alice Johnson	Headphones	300

Total rows: 5 Query complete 00:00:00.127 CRLF Ln 161, Col 1

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Query Query History

```

157 select * from customers; -- yes, correct table, needed for customers details
158 select * from orders; -- yes, correct table, needed for total_amount spent
159 select * from payments; -- wrong table, not needed
160 select * from products -- correct table, needed to show product name
161
162 --therefore, customers and orders tables are needed to answer above question.
163
164 select customers.customer_id, concat(customers.first_name, ' ', customers.last_name),
165 products.product_name, sum(orders.total_amount) as total_amount
166 from orders
167 join customers on customers.customer_id = orders.customer_id
168 join products on products.product_id = orders.product_id
169 group by customers.customer_id, customers.first_name, customers.last_name, products.product_name;
170
171 --Or

```

Data Output Messages Notifications

Showing rows: 1 to 5 Page No: 1 of 1

	customer_id integer	concat text	product_name character varying (50)	total_amount bigint
1	101	John Doe	Laptop	500
2	101	John Doe	Tablet	600
3	104	Bob Brown	Laptop	250
4	102	Jane Smith	Smartphone	200
5	103	Alice Johnson	Headphones	300

Total rows: 5 Query complete 00:00:00.127 CRLF Ln 161, Col 1

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Query Query History

```

185
186
187 --Q4: Convert the order_date from TEXT to DATE and list all orders placed in March 2023.
188
189 -- lets find out the correct tables to use:
190
191 select * from orders; -- the only table needed
192
193 select orders.order_id, orders.customer_id, cast(orders.order_date as date) as order_date
194 from orders
195 where order_date between '2023-03-01' and '2023-03-31';
196
197 --Or
198
199 SELECT

```

Data Output Messages Notifications

Showing rows: 1 to 1 Page No: 1 of 1

	order_id [PK] integer	customer_id integer	order_date date
1	3	103	2023-03-05

Total rows: 1 Query complete 00:00:00.160 CRLF Ln 199, Col 8



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Query

```
--Q5: Concatenate the customer's first name and last name, casting the result to VARCHAR.

select * from customers;

select customers.customer_id, concat(cast(customers.first_name as VARCHAR), ' ',
cast(customers.last_name as VARCHAR)) as customer_name
from customers
order by customers.customer_id;

--Or|

SELECT
customer_id,
CAST(first_name AS VARCHAR) || ' ' || CAST(last_name AS VARCHAR) AS full_name
```

Data Output

customer_id	customer_name
1	101 John Doe
2	102 Jane Smith
3	103 Alice Johnson
4	104 Bob Brown

Total rows: 4 Query complete 00:00:00.153 CRLF Ln 218, Col 5

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Query

```
--Q6: Display the first name and last name of all customers, and if the last name is missing,
-- show "Unknown" instead.

select * from customers;

select customers.first_name, coalesce(customers.last_name, 'unknown') as last_name
from customers;

--Or|

SELECT
first_name,
COALESCE(last_name, 'unknown') as last_name
```

Data Output

first_name	last_name
1 John	Doe
2 Jane	Smith
3 Alice	Johnson
4 Bob	Brown

Total rows: 4 Query complete 00:00:00.144 CRLF Ln 236, Col 1

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Query

```
--Q7: Show the total amount spent by each customer. If a customer has no orders, display 0
-- instead of NULL.

select * from customers;
select * from orders;

select customers.first_name, customers.last_name, coalesce(sum(orders.total_amount), 0) as total_spent
from customers
left join orders on customers.customer_id = orders.customer_id
group by customers.first_name, customers.last_name;

--Or|
```

Data Output

first_name	last_name	total_spent
1 John	Doe	1100
2 Bob	Brown	250
3 Alice	Johnson	300
4 Jane	Smith	200

Total rows: 4 Query complete 00:00:00.132 CRLF Ln 247, Col 22

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Query Query History

```
--Q8: Show the order status (Pending, Completed, Failed) based on the payment_status for each order.

select * from orders;
select * from payments;

select orders.order_id,
       case
         when payments.payment_status = 'Completed' then 'Completed'
         when payments.payment_status = 'Pending' then 'Pending'
         when payments.payment_status = 'Failed' then 'Failed'
         else 'Unknown'
       end as order_status
from orders
join payments on orders.order_id = payments.order_id;
```

Data Output Messages Notifications

Showing rows: 1 to 5 Page No: 1 of 1

order_id [PK] integer	order_status text
1	Completed
2	Failed
3	Completed
4	Pending
5	Completed

Total rows: 5 Query complete 00:00:00.146 CRLF Ln 269, Col 24

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Query Query History

```
--Q9: For each order, apply a 10% discount if the product belongs to the "Electronics" category, and
-- no discount for others.

select orders.order_id, products.product_name, products.category, orders.total_amount,
       case
         when products.category = 'Electronics' then orders.total_amount * 0.90
         else orders.total_amount
       end as discounted_price
from orders
join products on products.product_id = orders.product_id;

--Or
SELECT
  order_id,
```

Data Output Messages Notifications

Showing rows: 1 to 5 Page No: 1 of 1

order_id integer	product_name character varying (50)	category character varying (50)	total_amount integer	discounted_price numeric
1	Laptop	Electronics	500	450.00
2	Smartphone	Electronics	200	180.00
3	Headphones	Accessories	300	300
4	Tablet	Electronics	600	540.00
5	Laptop	Electronics	250	225.00

Total rows: 5 Query complete 00:00:00.140 CRLF Ln 295, Col 8

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Query Query History

```
--Q10: Classify customers based on their total spending into different categories:
-- "High spender" for customers who spent more than $500,
-- "Average spender" for those who spent between $200 and $500,
-- "Low spender" for those who spent less than $200.

select customers.first_name, customers.last_name, sum(orders.total_amount) as total_spent,
       case
         when sum(orders.total_amount) > 500 then 'High spender'
         when sum(orders.total_amount) between 200 and 500 then 'Average spender'
         else 'Low spender'
       end as spending_category
from customers
join orders on orders.customer_id = customers.customer_id
group by customers.first_name, customers.last_name;
```

Data Output Messages Notifications

Showing rows: 1 to 4 Page No: 1 of 1

first_name character varying (100)	last_name character varying (100)	total_spent bigint	spending_category text
John	Doe	1100	High spender
Bob	Brown	250	Average spender
Alice	Johnson	300	Average spender
Jane	Smith	200	Average spender

Total rows: 4 Query complete 00:00:00.197 CRLF Ln 322, Col 52

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Query Query History

```
--Q11: a) Find Customers with Multiple Orders:  
-- Show all customers who have placed more than one order, including the count of orders they placed.  
  
select customers.first_name, customers.last_name,  
count(orders.order_id) as total_orders  
from customers  
join orders on orders.customer_id = customers.customer_id  
group by customers.first_name, customers.last_name  
having count(orders.order_id) > 1;  
  
--Or  
  
SELECT
```

Data Output Messages Notifications

	first_name	last_name	total_orders
	character varying (100)	character varying (100)	bigint
1	John	Doe	2

Total rows: 1 Query complete 00:00:00.163 CRLF Ln 351, Col 1

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Query Query History

```
HAVING COUNT(o.order_id) > 1;  
  
--Q12: b) Total Spend per Category:  
-- Find the total amount spent per product category, only for categories where the total spending is  
-- over $500.  
  
select products.category, sum(orders.total_amount) as total_spent  
from orders  
join products on products.product_id = orders.product_id  
group by products.category  
having sum(orders.total_amount) > 500;  
  
--Or  
  
SELECT
```

Data Output Messages Notifications

	category	total_spent
	character varying (50)	bigint
1	Electronics	1550

Total rows: 1 Query complete 00:00:00.137 CRLF Ln 374, Col 1

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Query Query History

```
--Q13: a) Find Customers' First and Last Orders:  
-- Find the first and last orders placed by each customer, including the order date.  
  
select customers.first_name, customers.last_name,  
min(orders.order_date) as first_order, max(orders.order_date) as last_order  
from customers  
join orders on orders.customer_id = customers.customer_id  
group by customers.first_name, customers.last_name;  
  
--Or  
  
SELECT
```

Data Output Messages Notifications

	first_name	last_name	first_order	last_order
	character varying (100)	character varying (100)	date	date
1	John	Doe	2023-01-20	2023-04-10
2	Bob	Brown	2023-05-21	2023-05-21
3	Alice	Johnson	2023-03-05	2023-03-05
4	Jane	Smith	2023-02-11	2023-02-11

Total rows: 4 Query complete 00:00:00.233 CRLF Ln 397, Col 1



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Query Query History

```
407
408
409 --Q14: b) Top 3 Customers by Spending:
410 -- Find the top 3 customers who spent the most, including their total spending.
411
412 select customers.first_name, customers.last_name,
413        sum(orders.total_amount) as total_spent
414 from customers
415 join orders on orders.customer_id = customers.customer_id
416 group by customers.first_name, customers.last_name
417 order by total_spent desc
418 limit 3;
419
420 --Or
421
```

Data Output Messages Notifications

Showing rows: 1 to 3 Page No: 1 of 1

	first_name character varying (100)	last_name character varying (100)	total_spent bigint
1	John	Doe	1100
2	Alice	Johnson	300
3	Bob	Brown	250

Total rows: 3 Query complete 00:00:00.161 CRLF Ln 418, Col 9