

Rockbuster Queries

```
Query: WITH average_total_amount_paid_cte (customer_id, first_name, last_name,
city, country, total_amount_paid) AS
(Select a.customer_id, a.first_name, a.last_name, d.city, e.country,
SUM(b.amount) AS total_amount_paid
FROM Customer a
INNER JOIN payment b ON a.customer_id = b.customer_id
INNER JOIN address c ON a.address_id = c.address_id
INNER JOIN city d ON c.city_id = d.city_id
INNER JOIN country e ON d.country_id = e.country_id
WHERE d.city IN ('Aurora',
'Tokat',
'Tarsus',
'Atlixco',
'Emeishan',
'Pontianak',
'Shimoga',
'Aparecida de Goinia'
'Zalantun')
GROUP BY a.customer_id, a.first_name, a.last_name, d.city, e.country
ORDER BY total_amount_paid DESC
LIMIT 5)
SELECT AVG(total_amount_paid) AS average_amount_paid
FROM average_total_amount_paid_cte
```

```
WITH top_customer_count_cte(amount, customer_id, first_name, last_name, city,
country, total_amount_paid) AS
(Select a.amount, b.customer_id, b.first_name, b.last_name, d.city, e.country,
SUM(a.amount) AS total_amount_paid
FROM payment a
INNER JOIN customer b ON a.customer_id = b.customer_id
INNER JOIN address c ON b.address_id = c.address_id
INNER JOIN city d ON c.city_id = d.city_id
INNER JOIN country e ON d.country_id = e.country_id
WHERE d.city IN ('Aurora',
'Tokat',
'Tarsus',
'Atlixco',
'Emeishan',
'Pontianak',
'Shimoga',
'Aparecida de Goinia'
'Zalantun')

GROUP BY a.amount, b.customer_id, b.first_name, b.last_name, d.city, e.country
ORDER BY SUM(amount) DESC
LIMIT 5),
```

Rockbuster Queries

customer_count_cte AS

(SELECT d.country, COUNT(DISTINCT A.customer_id) AS all_customer_count,
COUNT(DISTINCT d.country) AS top_customer_count

FROM customer A

INNER JOIN address B ON A.address_id = B.address_id

INNER JOIN city C ON b.city_id = c.city_id

INNER JOIN country D ON c.country_ID = d.country_ID

Group by d.country)

SELECT d.country, COUNT(DISTINCT A.customer_id) AS all_customer_count,
COUNT(DISTINCT top_customer_count_cte.country) AS top_customer_count

FROM customer A

INNER JOIN address B ON A.address_id = B.address_id

INNER JOIN city C ON b.city_id = c.city_id

INNER JOIN country D ON c.country_ID = d.country_ID

LEFT JOIN top_customer_count_cte ON d.country=top_customer_count_cte.country

Group by d.country

Order by top_customer_count DESC

Limit 5

The screenshot shows the pgAdmin 4 interface with a SQL query executed in the 'Query' tab. The query is a complex JOIN statement involving customer, address, city, and country tables, with a subquery for top customer counts. The 'Data Output' tab shows the results of the query, which is a single row with a numeric value 120.322000000000000000. The 'Scratch Pad' tab is also visible, showing a list of cities: Tokat, Tarsus, Atlitico, Emeishan, Pontianak, Shimoga, and Aparecida de Goinia. The status bar at the bottom indicates 'Total rows: 1 of 1' and 'Query complete 00:00:00.102'.

```
8 FROM customer B
9 INNER JOIN payment A ON B.customer_id =
10 A.customer_id
11 INNER JOIN address C ON B.address_id =
12 C.address_id
13 INNER JOIN city D ON c.city_id = d.city_id
14 INNER JOIN country E ON d.country_id =
15 e.country_id
16 WHERE d.city IN ('Aurora',
17 'Tokat',
18 'Tarsus',
19 'Atlitico',
20 'Emeishan',
21 'Pontianak',
22 'Shimoga')
23
```

average
120.322000000000000000

Rockbuster Queries

The screenshot shows the pgAdmin 4 interface with a PostgreSQL query executed. The query is a complex JOIN statement that calculates the total amount paid by customers, grouped by country. The results are displayed in a table with columns: country, all customer count, and top customer count.

Query:

```
1 SELECT d.country, COUNT(DISTINCT A.customer_id) AS "all customer count" ,
2 COUNT(DISTINCT top_5_customer.customer_id) AS "top customer count"
3 FROM customer A
4 INNER JOIN address B
5 ON A.address_id = B.address_id
6 INNER JOIN city c
7 ON B.city_id = c.city_id
8 INNER JOIN country D
9 ON c.country_id = d.country_id
10 INNER JOIN payment E
11 ON E.customer_id = A.customer_id
12 LEFT JOIN
13 (SELECT A.customer_id, A.first_name, A.last_name, country, city, SUM(amount) as
14 total_amount_paid
15 FROM customer A
16 INNER JOIN payment B ON A.customer_id = B.customer_id
17 GROUP BY A.customer_id, A.first_name, A.last_name, country, city) AS top_5_customer
18 ON A.customer_id = top_5_customer.customer_id
```

Data Output:

country	all customer count	top customer count
Mexico	30	1
Turkey	15	1
China	53	1
United States	36	1
Indonesia	14	1
Argentina	13	0
Armenia	1	0
Austria	3	0
Azerbaijan	2	0

Total rows: 108 of 108 Query complete 00:00:00.119 Ln 6, Col 18

1a	Write a query to find the top 10 countries for Rockbuster in terms of customer numbers. (Tip: you'll have to use GROUP BY and ORDER BY, both of which follow the join.)	<pre>SELECT D.country, COUNT(A.customer_id) AS Total_number_of_customers FROM customer A INNER JOIN address B ON A.address_id = B.address_id INNER JOIN city C ON B.city_id = C.city_id INNER JOIN country D ON C.country_id = D.country_id GROUP BY D.country ORDER BY Total_number_of_customers DESC LIMIT 10</pre>	
	Write a few sentences on how you approached this query and why. It's important that you can explain your thought process when writing queries, especially for future interviews.		This query needed to be multiple joins. The customer table contained some information but could not be joined directly with the country table. There needed to be an intermediary connecting the two tables to produce the client's desired output.
1b	Write a query to find the top 10 cities within the top 10 countries identified in step 1.	<pre>SELECT C.city, COUNT(A.customer_id) AS Total_number_of_customers FROM customer A INNER JOIN address B ON A.address_id = B.address_id INNER JOIN city C ON B.city_id = C.city_id INNER JOIN country D ON C.country_id = D.country_id WHERE D.country IN ('India', 'China', 'United States', 'Japan', 'Mexico', 'Brazil', 'Russian Federation', 'Philippines', 'Turkey', 'Indonesia') GROUP BY C.city ORDER BY count (C.city_id) DESC LIMIT 10;</pre>	
2	Write a short explanation of how you approached this query		Like with the previous query multiple join were used and there was a change to the group by focusing on 'city' rather than country
2b	and why.	<pre>SELECT B.customer_id, B.first_name, B.last_name, d.city, e.country, SUM(A.amount) AS Total_Amount FROM customer B INNER JOIN payment A ON B.customer_id = A.customer_id INNER JOIN address C ON B.address_id = C.address_id INNER JOIN city D ON c.city_id = d.city_id INNER JOIN country E ON d.country_id = e.country_id WHERE d.city IN ('Aurora', 'Tokat', 'Tarsus', 'Atlixco', 'Emeishan', 'Pontianak', 'Shimoga', 'Aparecida de Goiania' 'Zalantun') GROUP BY b.customer_id, B.first_name, B.last_name, d.city, e.country, city ORDER BY Total_Amount DESC LIMIT 5;</pre>	This was a bit more complicated in that I have to do another join ('payment') in order to calculate the 'amount'. In addition, the 'where' function needed to be used to narrow the query to the cities that were of interest to the client.
3	Write a query to find the top 5 customers in the top 10 cities who have paid the highest total amounts to Rockbuster. The customer team would like to reward them for their loyalty!		A = customer , B = address, C = city, D = country A = payment, B = customer , C = address, D = city, E = country

country	total_number_of _customers
India	60
China	53
United States	36
Japan	31
Mexico	30
Brazil	28
Russian Federation	28
Philippines	20
Turkey	15
Indonesia	14

The screenshot shows the pgAdmin 4 interface with a PostgreSQL query executed. The query is as follows:

```

1 SELECT D.country, COUNT(A.customer_id) AS Total_number_of_custome
2 FROM customer A
3 INNER JOIN address B ON A.address_id = B.address_id
4 INNER JOIN city C ON B.city_id = C.city_id
5 INNER JOIN country D ON C.country_id = D.country_id
6 GROUP BY D.country
7 ORDER BY count (A.customer_id) DESC
8 LIMIT 10;

```

The results are displayed in a table with the following data:

country	total_number_of_customers
India	60
China	53
United States	36
Japan	31
Mexico	30
Brazil	28
Russian Federation	28
Philippines	20
Turkey	15
Indonesia	14

A status message at the bottom indicates: "Successfully run. Total query runtime: 207 msec. 10 rows affected."

city	total_number_of_customers
Aurora	2
Tokat	1
Tarsus	1
Atlixco	1
Emeishan	1
Pontianak	1
Shimoga	1
Aparecida d	1
Zalantun	1

The screenshot shows the pgAdmin 4 interface. On the left, the 'Servers' tree is expanded to show the 'public' schema. The 'Query' tab is active, displaying the following SQL query:

```

1 SELECT C.city, COUNT(A.customer_id) AS Total_number_of_customers
2 FROM customer A
3 INNER JOIN address B ON A.address_id = B.address_id
4 INNER JOIN city C ON B.city_id = C.city_id
5 INNER JOIN country D ON C.country_id = D.country_id
6 WHERE D.country IN ('India', 'China', 'United States', 'Japan',
7                     'Mexico', 'Brazil', 'Russian Federation',
8                     'Philippines', 'Turkey', 'Indonesia')
9
10 GROUP BY C.city
11 ORDER BY count (C.city_id) DESC
12 LIMIT 10;

```

Below the query editor, the results are displayed in a table with 2 columns: 'city' (character varying (50)) and 'total_number_of_customers' (bigint). The results are as follows:

city	total_number_of_customers
Aurora	2
Tokat	1
Tarsus	1
Atlixco	1
Emeishan	1
Pontianak	1
Shimoga	1
Aparecida de Goiânia	1
Zalantun	1

The status bar at the bottom indicates 'Total rows: 10 of 10' and 'Query complete 00:00:00.078'.

customer_id	first_name	last_name	city	country	total_amount	customer_count
566	Casey	Mena	Tokat	Turkey	130.68	8
84	Sara	Perry	Atlixco	Mexico	128.7	8
506	Leslie	Seward	Pontianak	Indonesia	123.72	8
389	Alan	Kahn	Emeishan	China	119.75	7
537	Clinton	Buford	Aurora	United States	98.76	3

pgAdmin 4

pgAdmin File Object Tools Help

Browser Servers (1) PostgreSQL 15 Databases (2) Rockbuster PostgreSQL 15

Query Query History

```

13 INNER JOIN country E ON d.country_id =
14 e.country_id
15 WHERE d.city IN ('Aurora',
16 'Tokat',
17 'Tarsus',
18 'Atlixco',
19 'Emeishan',
20 'Pontianak',
21 'Shimoga',
22 'Aparecida de Goiania',
23 'Zalantun')
24 GROUP BY b.customer_id, B.first_name, B.last_name, d.city, e.country, city
25 ORDER BY Total_Amount DESC
26 LIMIT 5;

```

Data Output Messages Notifications

customer_id	first_name	last_name	city	country	total_Amount
1	566	Casey	Mena	Tokat	130.68
2	84	Sara	Perry	Atlixco	128.70
3	506	Leslie	Seward	Pontianak	123.72
4	389	Alan	Kahn	Emeishan	119.75
5	537	Clinton	Buford	Aurora	98.76

Total rows: 5 of 5 Query complete 00:00:00.099 Ln 26, Col 9

5:39 AM 11/29/2022