

### 3.7: Joining Tables of Data

1. 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.)

- Copy-paste your query and its output into your answers document.

The screenshot shows the pgAdmin 4 interface. On the left, the 'Servers' tree is expanded to show the 'Rockbuster' database. The 'Query Editor' pane contains the following SQL query:

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

Below the query editor, the 'Data Output' pane displays the results of the query in a table:

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

- 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.

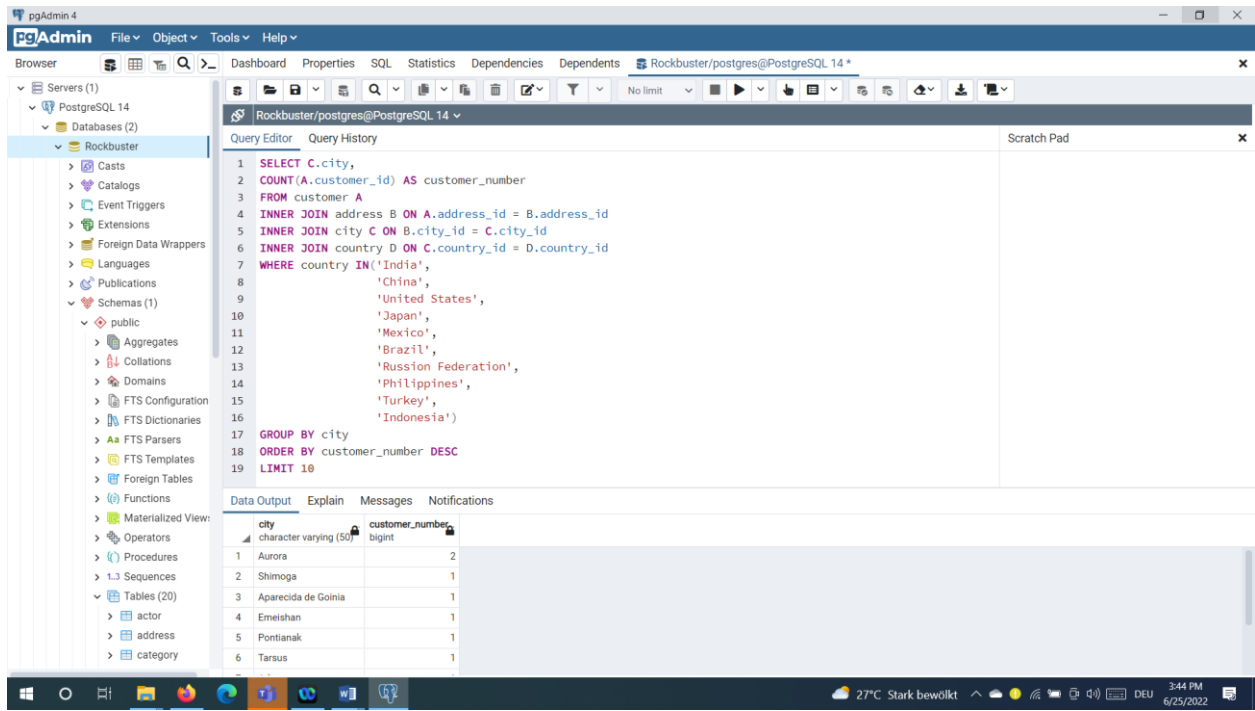
I revisited the customer, address, city, and country data tables and I was trying to realize how this tables are connected.

I then joined the customer data with the address, city, and country data with the inner join command.

I have inserted GROUP BY command and counted the customer based on country. With ORDER BY command I have arranged customer numbers from highest to lowest. With LIMIT 10 command I got first 10 on the list.

2. Write a query to find the top 10 cities within the top 10 countries identified in step 1.

- Copy-paste your query and its output into your answers document.



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

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

The 'Data Output' tab shows the results of the query:

city	customer_number
Aurora	2
Shimoga	1
Aporecida de Goinia	1
Emeishan	1
Pontianak	1
Tarusus	1

- Write a short explanation of how you approached this query and why

Looking for the cities in the top 10 countries identified earlier, then grouping by city and sorting by number of customers in each city. And at the end limiting output to top 10

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!

- Tip: After the join syntax, you'll need to use the WHERE clause with an operator, followed by GROUP BY and ORDER BY. Your output should include the following columns: Customer ID, Customer First Name and Last Name, Country, City, Total Amount Paid.

- Copy-paste your query and its output into your answers document.

The screenshot shows the pgAdmin 4 interface. On the left, the 'Servers' tree is expanded to show 'PostgreSQL 14' and 'Databases (2)', with 'Rockbuster' selected. The 'Query Editor' window displays a SQL query that selects customer information and calculates the total amount for specific cities. The 'Data Output' tab shows the results of the query, which are two rows of data.

```
1 SELECT A.customer_id,  
2 A.first_name,  
3 A.last_name,  
4 C.city,  
5 D.country,  
6 SUM(E.amount) AS total_amount  
7 FROM customer A  
8 INNER JOIN address B ON A.address_id = B.address_id  
9 INNER JOIN city C ON B.city_id = C.city_id  
10 INNER JOIN country D ON C.country_id = D.country_id  
11 INNER JOIN payment E ON A.customer_id = E.customer_id  
12 WHERE city IN('Aurora',  
13 'Shimoga',  
14 'Aparecida de Goiania',  
15 'Emeishan',  
16 'Pontianak',  
17 'Tarsus',  
18 'Atlixco',  
19 'Zalantun',  
20 'Rio Claro',  
21 'Tokat')  
22 GROUP BY A.customer_id, C.city, D.country  
23 ORDER BY total_amount DESC  
24 LIMIT 5
```

customer_id	first_name	last_name	city	country	totalAmount
566	Casey	Mena	Tokat	Turkey	130.68
84	Sara	Perry	Atlixco	Mexico	128.70

The bottom of the screen shows a Windows taskbar with various application icons and a system tray indicating the temperature is 28°C, it is cloudy, and the time is 4:04 PM on 6/25/2022.