

# Answers 3.7

1

The screenshot shows the pgAdmin 4 web interface. The left sidebar displays a tree view of the database structure, including Servers, PostgreSQL 14, Databases, and the Rockbuster database. The main pane shows a SQL query in the 'Query' tab, which is a complex join query. The 'Data output' tab at the bottom displays the results of the query as a table with two columns: 'country' and 'number\_of\_customers'. The results are sorted by 'number\_of\_customers' in descending order, showing 10 rows of data.

```
1 SELECT D.country,
2       COUNT (customer_id) AS number_of_customers
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 D.country
8 ORDER BY COUNT (customer_id) DESC
9 LIMIT 10;
```

	country	number_of_customers
1	India	60
2	China	53
3	United States	36
4	Japan	31
5	Mexico	30
6	Brazil	28
7	Russian Federation	28
8	Philippines	20
9	Turkey	15
10	Indonesia	14

Total rows: 10 of 10 Query complete 00:00:00.058 Ln 9, Col 10

I thought I would need a `country_id` and a `customer_id` columns to answer the question. Since the two columns belonging to different tables, I determined that it was necessary to connect these two tables using a join command. It was not clear which primary key and foreign key were associated with which table. In common sense, if I looked at all the columns in the customer table, I may possibly determine that I could see the relationship between the primary and foreign keys of the other tables that were derived, and with this idea, I could complete the query of this problem.

2

The screenshot shows the pgAdmin 4 web interface. On the left, the 'Servers' tree is expanded to show 'PostgreSQL 14' and 'Databases (2)'. Under 'Databases (2)', 'Rockbuster' is selected. The 'Query' tab is active, displaying the following SQL query:

```
1 SELECT C.city,  
2     COUNT (customer_id) AS number_of_customers  
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 D.country IN ('India', 'China', 'United States', 'Japan', 'Mexico', 'Brazil', 'Russian Federation', 'Philippines', 'Turkey', 'Indonesia')  
8  
9 GROUP BY C.city  
10 ORDER BY COUNT (customer_id) DESC  
11 LIMIT 10;
```

Below the query editor, the 'Data output' tab shows the results of the query in a table format:

city	number_of_customers
Aurora	2
Tokat	1
Tarsus	1
Atlixco	1
Emeishan	1
Pontianak	1
Shimoga	1
Aparecida de Goiania	1
Zalantun	1
Taguig	1

The status bar at the bottom indicates 'Total rows: 10 of 10' and 'Query complete 00:00:00.047'.

I thought this is the same type of problem as question 1. Instead of the country\_id column which was written in the previous problem, I used city\_id column. As a result, the same inner join commands were also used in the same way as the previous problem did because the data output should include the name of the country as well.

3

The screenshot shows the pgAdmin 4 web interface. On the left, the 'Servers' tree is expanded to show 'PostgreSQL 14' and 'Rockbuster'. The 'Rockbuster' database is selected, and the 'Query' tab is active. The SQL query is as follows:

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

Below the query editor, the 'Data output' tab shows the results of the query in a table format:

customer_id	first_name	last_name	city	country	amount	total_paid	
1	72	Theresa	Watson	Taguig	Philippines	4.99	44.91
2	537	Clinton	Buford	Aurora	United States	4.99	39.92
3	566	Casey	Mena	Tokat	Turkey	4.99	39.92
4	389	Alan	Kahn	Emeishan	China	4.99	39.92
5	84	Sara	Perry	Atlixco	Mexico	4.99	34.93

At the bottom of the interface, the status bar indicates 'Total rows: 5 of 5' and 'Query complete 00:00:00.047'. The macOS dock is visible at the bottom with various application icons.