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Exercise 3.7

In this task, you'll practice everything you learned in the Exercise. You'll write queries with joins between the address, country, city, customer, and payment tables using their common keys. Create a new text document and call it "Answers 3.7." As you've done in previous tasks, you'll save your queries, outputs, and written answers in this document.

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.)

```
SELECT country,  
COUNT(customer_id) AS count_of_cust  
FROM customer AS cust  
INNER JOIN address AS add ON cust.address_id = add.address_id  
INNER JOIN city AS cit ON add.city_id = cit.city_id  
INNER JOIN country AS cou ON cit.country_id = cou.country_id  
GROUP BY country  
ORDER BY COUNT(customer_id) DESC  
LIMIT 10;
```

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

Query		Query History	
<pre>1 ✓ SELECT country, 2 COUNT(customer_id) AS count_of_cust 3 FROM customer AS cust 4 INNER JOIN address AS add ON cust.address_id = add.address_id 5 INNER JOIN city AS cit ON add.city_id = cit.city_id 6 INNER JOIN country AS cou ON cit.country_id = cou.country_id 7 GROUP BY country 8 ORDER BY COUNT(customer_id) DESC 9 LIMIT 10;</pre>			
Data Output	Messages	Notifications	
			SQL
country character varying (50)	count_of_cust bigint		
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		

- Write a few sentences on how you approached this query and why. You must be able to explain your thought process when writing queries, especially for future interviews.

The first thing I did was map out how the tables were connected so I could reach the country information from the customer table. I followed the path from customer → address → city → country using the keys (address_id, city_id, country_id). Once that was clear, I built the query by joining these tables and selecting the country name along with a count of customers per country using COUNT(customer_id) with an alias. I then added a GROUP BY on country so the counts were summarized correctly for each country. To finish, I limited the results to show only the top 10 countries with the highest number of customers.

2. Next, write a query to identify the top 10 cities that fall within the top 10 countries you identified in step 1. (Hint: the top 10 cities can be in any of the countries identified—you don't need to create a separate list for each country.)

SELECT city, country,

COUNT(cust.customer_id) AS count_of_cust FROM customer AS cust

INNER JOIN address AS add ON cust.address_id = add.address_id

INNER JOIN city AS cit ON add.city_id = cit.city_id

INNER JOIN country AS cou ON cit.country_id = cou.country_id

WHERE country IN('India', 'China', 'United States', 'Japan', 'Mexico', 'Brazil', 'Russian Federation', 'Philippines', 'Turkey', 'Indonesia')

GROUP BY city, country

ORDER BY COUNT(customer_id) DESC

LIMIT 10;

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

The screenshot shows a SQL query editor interface. At the top, there are tabs for 'Query' (which is selected), 'Query History', 'Data Output', 'Messages', and 'Notifications'. Below the tabs is a toolbar with various icons. The main area contains the SQL query:

```
1 v SELECT city, country,
2   COUNT(cust.customer_id) AS count_of_cust
3   FROM customer AS cust
4   INNER JOIN address AS add ON cust.address_id = add.address_id
5   INNER JOIN city AS cit ON add.city_id = cit.city_id
6   INNER JOIN country AS cou ON cit.country_id = cou.country_id
7   WHERE country IN('India', 'China', 'United States', 'Japan',
8     'Mexico', 'Brazil', 'Russian Federation', 'Philippines', 'Turkey', 'Indonesia')
9   GROUP BY city, country
10  ORDER BY COUNT(customer_id) DESC
11  LIMIT 10;
```

Below the query is a table titled 'Data Output' showing the results:

	city character varying (50)	country character varying (50)	count_of_cust bigint
1	Aurora	United States	2
2	Atlixco	Mexico	1
3	Xintai	China	1
4	Adoni	India	1
5	Dhule (Dhulia)	India	1
6	Kurashiki	Japan	1
7	Pingxiang	China	1
8	Sivas	Turkey	1
9	Celaya	Mexico	1
10	So Leopoldo	Brazil	1

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

Since I already had my list of the top 10 countries, I filtered the results to just those countries using a WHERE clause with an IN statement. I reused the same JOIN structure from the previous query to connect the customer, address, city, and country tables. Then I grouped the results by both city and country so the customer counts were calculated correctly at the city level and could be ranked to find the top 10 cities overall.

3. **Now write a query to find the top 5 customers from the top 10 cities who've paid the highest total amounts to Rockbuster. The customer team would like to reward them for their loyalty!**

```

SELECT cust.customer_id, cust.first_name, cust.last_name, cou.country, cit.city,
SUM(pay.amount) AS total_payment

FROM customer AS cust

INNER JOIN payment AS pay ON cust.customer_id = pay.customer_id

INNER JOIN address AS add ON cust.address_id = add.address_id

INNER JOIN city AS cit ON add.city_id = cit.city_id

INNER JOIN country AS cou ON cit.country_id = cou.country_id

WHERE cit.city IN ('Aurora', 'Atlixco', 'Xintai', 'Adoni', 'Dhule (Dhulia)', 'Kurashiki', 'Pingxiang',
'Sivas', 'Celaya', 'So Leopoldo') AND cou.country IN ('India', 'China', 'United States', 'Japan',
'Mexico', 'Brazil', 'Russian Federation', 'Philippines', 'Turkey', 'Indonesia')

GROUP BY cust.customer_id, cust.first_name, cust.last_name, cou.country, cit.city
ORDER BY total_payment DESC

LIMIT 5;

```

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

Query Query History

```

1 SELECT cust.customer_id, cust.first_name,
2 cust.last_name, cou.country, cit.city,
3 SUM(pay.amount) AS total_payment
4 FROM customer AS cust
5 INNER JOIN payment AS pay ON cust.customer_id = pay.customer_id
6 INNER JOIN address AS add ON cust.address_id = add.address_id
7 INNER JOIN city AS cit ON add.city_id = cit.city_id
8 INNER JOIN country AS cou ON cit.country_id = cou.country_id
9 WHERE cit.city IN ('Aurora', 'Atlixco', 'Xintai', 'Adoni',
10 'Dhule (Dhulia)', 'Kurashiki', 'Pingxiang', 'Sivas',
11 'Celaya', 'So Leopoldo')
12 AND cou.country IN ('India', 'China', 'United States',
13 'Japan', 'Mexico', 'Brazil', 'Russian Federation',
14 'Philippines', 'Turkey', 'Indonesia')
15 GROUP BY cust.customer_id, cust.first_name, cust.last_name, cou.country, cit.city
16 ORDER BY total_payment DESC
17 LIMIT 5;

```

Data Output Messages Notifications

customer_id	first_name	last_name	country	city	total_payment	
1	84	Sara	Perry	Mexico	Atlixco	128.70
2	518	Gabriel	Harder	Turkey	Sivas	108.75
3	587	Sergio	Stanfield	Mexico	Celaya	102.76
4	537	Clinton	Buford	United States	Aurora	98.76
5	367	Adam	Gooch	India	Adoni	97.80