3.8 Performing Subqueries

Answers 3.8

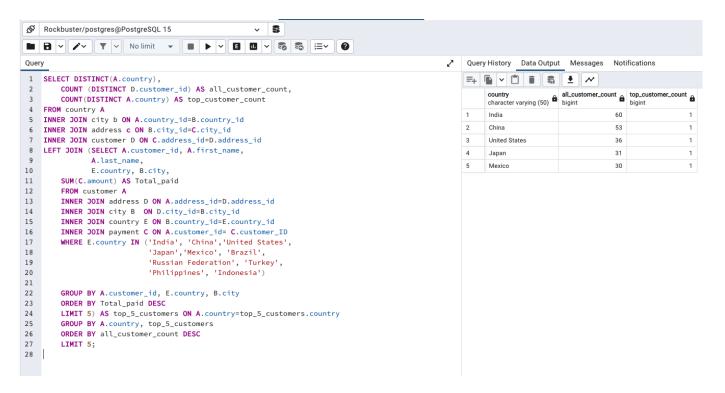
Step 1: Find the average amount paid by the top 5 customers.

```
SELECT AVG(Total Amount Paid) AS average by top5 customers
     FROM
     (SELECT B.customer_id, B.first_name,
                     B.last_name, D.city, E.country,
SUM(A.amount) AS Total_Amount_Paid
             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', 'Atlixco',
                                            'Xintai', 'Adoni', 'Dhule (Dhulia)',
                                            'Kurashiki', 'Pingxiang',
                                            'Sivas', 'Celaya', 'So Leopoldo')
             GROUP BY B.customer id, B.first name, B.last name, D.city, E.country
             ORDER BY Total_Amount_Paid DESC
             LIMIT 5) AS total_amount_paid;
```

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    SELECT AVG(Total_Amount_Paid) AS average_by_top5_customers
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 2
    FROM
                                                                                    average_by_top5_customers
 3
                                                                                    numeric
    (SELECT B.customer_id, B.first_name,
 4
                                                                                        107.35400000000000000
            B.last_name, D.city, E.country,
 6
        SUM(A.amount) AS Total_Amount_Paid
 7
        FROM customer B
 8
        INNER JOIN payment A ON B.customer_id = A.customer_id
 9
        INNER JOIN address C ON B.address_id = C.address_id
10
        INNER JOIN city D ON C.city_id = D.city_id
        INNER JOIN country E ON D.country_id = E.country_id
11
12
        WHERE D.city IN ('Aurora', 'Atlixco',
                          'Xintai', 'Adoni', 'Dhule (Dhulia)',
13
                           'Kurashiki', 'Pingxiang',
14
                           'Sivas', 'Celaya', 'So Leopoldo')
15
         GROUP BY B.customer_id, B.first_name, B.last_name, D.city, E.coun
16
17
        ORDER BY Total_Amount_Paid DESC
18
        LIMIT 5) AS total_amount_paid;
19
```

 Step 2: Find out how many of the top 5 customers are based within each country.

```
SELECT DISTINCT(A.country),
       COUNT (DISTINCT D.customer id) AS all customer count,
       COUNT(DISTINCT A.country) AS top_customer_count
FROM country A
INNER JOIN city b ON A.country_id=B.country_id
INNER JOIN address c ON B.citv id=C.citv id
INNER JOIN customer D ON C.address id=D.address id
LEFT JOIN (SELECT A.customer_id, A.first_name,
                A.last_name,
                E.country, B.city,
       SUM(C.amount) AS Total paid
       FROM customer A
       INNER JOIN address D ON A.address id=D.address id
       INNER JOIN city B ON D.city id=B.city id
  INNER JOIN country E ON B.country id=E.country id
  INNER JOIN payment C ON A.customer id= C.customer ID
       WHERE E.country IN ('India', 'China', 'United States',
                                          'Japan', 'Mexico', 'Brazil',
                                          'Russian Federation', 'Turkey',
                                          'Philippines', 'Indonesia')
       GROUP BY A.customer id, E.country, B.city
       ORDER BY Total paid DESC
       LIMIT 5) AS top 5 customers ON A.country=top 5 customers.country
       GROUP BY A.country, top_5_customers
       ORDER BY all_customer_count DESC
       LIMIT 5;
```



Step 3:

- 1. Write 1 to 2 short paragraphs on the following:
- Do you think steps 1 and 2 could be done without using subqueries?
 I think both could have been done with a JOIN and is more efficient in most cases.
 - When do you think subqueries are useful?

We should use subqueries when the result we want requires more than one query, and each subquery provides a subset of the table involved in the query.