3.8: PERFORMING SUBQUERIES

STEP 1

Find the average amount paid by the top 5 customers.

Query | Query History

```
SELECT AVG(total_amount_paid) AS average_amount_paid
FROM (SELECT SUM(A.amount) AS total_amount_paid,
             B.customer_id,
             B.first_name,
             B.last_name,
             D.city,
             E.country
      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 city IN ('Aurora','Acua','Citrus Heights','Iwaki','Ambattur','Shanwei',
                'So Leopoldo','Teboksary','Tianjin','Cianjur')
      GROUP BY B.customer_id,
               first_name,
               last_name,
               city,
               country
      ORDER BY total_amount_paid DESC
      LIMIT 5) AS total_amount_paid

```

Data Output | Messages | Notifications

	average_amount_paid numeric
1	105.5540000000000000

STEP 2

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

```
ORDER BY all_customer_count DESC
LIMIT 5
```

Data Output | Messages | Notifications

	country character varying (50)	all_customer_count bigint	top5_customer_count bigint
1	India	60	1
2	China	53	1
3	United States	36	1
4	Japan	31	1
5	Mexico	30	1

Query | Query History

```sql
SELECT E.country,
       COUNT(DISTINCT B.customer_id) AS all_customer_count,
       COUNT(DISTINCT top5_customer.customer_id) AS top5_customer_count
FROM country E
INNER JOIN city D ON E.country_id = D.country_id
INNER JOIN address C ON D.city_id = C.city_id
INNER JOIN customer B ON C.address_id = B.address_id
LEFT JOIN
(SELECT SUM(A.amount) AS total_amount_paid,
             B.customer_id,
             B.first_name,
             B.last_name,
             D.city,
             E.country
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 city IN ('Aurora','Acua','Citrus Heights','Iwaki','Ambattur','Shanwei',
               'So Leopoldo','Teboksary','Tianjin','Cianjur')
GROUP BY B.customer_id,
              first_name,
              last_name,
              city,
              country
ORDER BY total_amount_paid DESC
LIMIT 5) AS top5_customer ON E.country=top5_customer.country
GROUP BY E.country
ORDER BY all_customer_count DESC
```

STEP 3

Do you think steps 1 and 2 could be done without using subqueries?

When do you think subqueries are useful?

- I am sure that the steps 1 and 2 could be completed without subqueries. However, that would mean that we would have to write separate queries and use the results to write queries for next step.

  Nested subqueries allow us to pull the data that is used to determine the results in the main query. It helps us avoid writing endless lines of unnecessary code.