3.8   Performing Subqueries

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

```sql
SELECT AVG(total_amount.total_amount) AS average_amount
FROM (SELECT
        A.customer_id,
        D.country,
        C.city,
        SUM(F.amount) AS total_amount
    FROM payment F
    INNER JOIN customer A ON F.customer_id = A.customer_id
    LEFT JOIN address B ON A.address_id = B.address_id
    LEFT JOIN city C ON B.city_id = C.city_id
    LEFT JOIN country D ON C.country_id = D.country_id
    WHERE city IN ('Aurora', 'Tokat', 'Tarsus', 'Atlixco', 'Emeishan',
        'Pontianak', 'Shimoga', 'Aparecida de Goinia', 'Zalantun', 'Taguig')
    GROUP BY A.customer_id, D.country, C.city
    ORDER BY total_amount DESC
    LIMIT 5) AS total_amount;
```

average_amount
120.3220000000000000

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

```sql
SELECT
    country.country AS country,
    COUNT(customer.customer_id) AS all_customer_count,
    COUNT(top_customer.customer_id) AS top_customer_count
FROM customer customer
INNER JOIN address address ON customer.address_id = address.address_id
INNER JOIN city city ON address.city_id = city.city_id
INNER JOIN country country ON city.country_id = country.country_id
LEFT JOIN (
    SELECT
        A.customer_id,
        A.first_name,
        A.last_name,
        D.country,
        C.city,
        SUM(F.amount) AS total_amount
    FROM payment F
    INNER JOIN customer A ON F.customer_id = A.customer_id
    LEFT JOIN address B ON A.address_id = B.address_id
    LEFT JOIN city C ON B.city_id = C.city_id
    LEFT JOIN country D ON C.country_id = D.country_id
    WHERE city IN ('Aurora', 'Tokat', 'Tarsus', 'Atlixco', 'Emeishan',
```

```
      'Pontianak', 'Shimoga', 'Aparecida de Goinia', 'Zalantun', 'Taguig')
    GROUP BY A.customer_id, D.country, C.city
    ORDER BY total_amount DESC
    LIMIT 5) top_customer ON customer.customer_id = top_customer.customer_id
GROUP BY country.country
ORDER BY top_customer_count DESC;
```

Country	all_customer_count	top_customer_count
China	53	1
United States	36	1
Mexico	30	1
Indonesia	14	1
Turkey	15	1

Step 3
Write 1 to 2 short paragraphs on the following:

a. **Do you think steps 1 and 2 could be done without using subqueries?**
Step 1 could've been solved without Subqueries and with joins instead – Step 2 needs to be solved with subqueries.

b. **When do you think subqueries are useful?**
Subqueries are useful when you use the output of other queries, e. g. SELECT statement.