

Task 3.8 – Performing Subqueries

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

```
SELECT AVG(amount_paid) AS average|
FROM
(SELECT A.customer_id,
      first_name,
      last_name,
      city,
      country,
      SUM(B.amount) AS amount_paid
FROM customer A
JOIN payment B ON A.customer_id = B.customer_id
JOIN address C ON A.address_id = C.address_id
JOIN city D ON C.city_id = D.city_id
JOIN country E ON D.country_id = E.country_id
WHERE city IN ('Aurora', 'Atlixco', 'Xintai', 'Adoni',
'Dhule (Dhulia)', 'Kurashiki', 'Pingxiang', 'Sivas', 'Celaya',
'So Leopoldo')
GROUP BY A.customer_id, first_name, last_name, city, country
ORDER BY amount_paid DESC
LIMIT 5) AS total_amount_paid
```

average	🔒
numeric	
107.3540000	

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 all_country_count
FROM country A
JOIN city B ON A.country_id = B.country_id
JOIN address C ON B.city_id = C.city_id
JOIN customer D ON C.address_id = D.address_id
LEFT JOIN (SELECT A.customer_id,
                 first_name,
                 last_name,
                 city,
                 country,
                 SUM(B.amount) AS amount_paid
FROM customer A
JOIN payment B ON A.customer_id = B.customer_id
JOIN address C ON A.address_id = C.address_id
JOIN city D ON C.city_id = D.city_id
JOIN country E ON D.country_id = E.country_id
WHERE city IN ('Aurora', 'Atlixco', 'Xintai', 'Adoni',
               'Dhule (Dhulia)', 'Kurashiki', 'Pingxiang', 'Sivas', 'Celaya',
               'So Leopoldo'))
GROUP BY A.customer_id, first_name, last_name, city, country
ORDER BY amount_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
```

country character varying (50)	all_customer_count bigint	all_country_count bigint
India	60	1
China	53	1
United States	36	1
Japan	31	1
Mexico	30	1

Step 3:

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

Step 1 could've been done without the use of a subquery, using aggregate functions to filter the payment amounts. Step 2 however, is more complex query, which requires the joining of multiple tables.

- **When do you think subqueries are useful?**

When data is constantly changing, it's very useful to place a subquery in the **WHERE** clause. In addition, they let you use the results of the inner statement in the outer statement.