3.8 SQL Sub-Queries

Q1 Find the average amount paid by the top 5 customers.

Query:

```
SELECT AVG(total_amount_paid) AS average_amount_paid
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 average_amount_paid
```

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

    ➡
    ■
    ■
    ■
    ■
    ■
    W

     average_amount_paid
     numeric
   107.35400000000000000
T. I. 4 (4 0 11 00 00 00 00
```

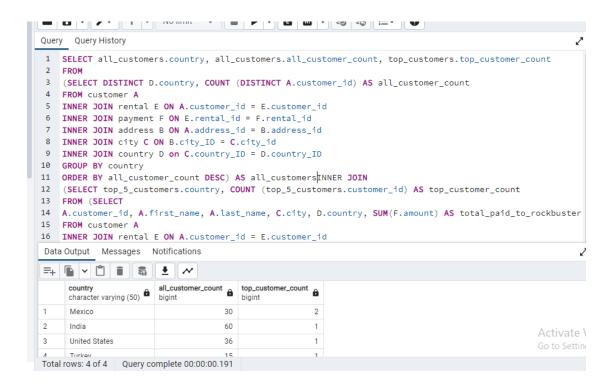
Q2: Find out how many of the top 5 customers are based within each country.

Your final output should include 3 columns:

- "country"
- "all customer count" with the total number of customers in each country
- "top customer count" showing how many of the top 5 customers live in each country

Query

SELECT all_customers.country, all_customers.all_customer_count, top customers.top customer count FROM (SELECT DISTINCT D.country, COUNT (DISTINCT A.customer id) AS all customer count FROM customer A INNER JOIN rental E ON A.customer id = E.customer id INNER JOIN payment F ON E.rental_id = F.rental_id INNER JOIN address B ON A.address_id = B.address_id INNER JOIN city C ON B.city ID = C.city id INNER JOIN country D on C.country ID = D.country ID GROUP BY country ORDER BY all customer count DESC) AS all customers **INNER JOIN** (SELECT top_5_customers.country, COUNT (top_5_customers.customer_id) AS top_customer_count FROM (SELECT A.customer id, A.first name, A.last name, C.city, D.country, SUM(F.amount) AS total paid to rockbuster FROM customer A INNER JOIN rental E ON A.customer id = E.customer id INNER JOIN payment F ON E.rental_id = F.rental_id INNER JOIN address B ON A.address_id = B.address_id INNER JOIN city C ON B.city_ID = C.city_id INNER JOIN country D on C.country ID = D.country ID WHERE city IN ('Aurora', 'Atlixco', 'Xintai', 'Adoni', 'Dhule (Dhulia)', 'Kurashiki', 'Pingxiang', 'Sivas', 'Celaya', 'So Leopoldo') GROUP BY a.customer id, A.first name, A.last name, C.city, D.country ORDER BY total_paid_to_rockbuster DESC LIMIT 5) AS top 5 customers GROUP BY top_5_customers.country) AS top_customers ON all_customers.country = top_customers.country ORDER BY top customer count DESC



- Q3. Write 1 to 2 short paragraphs on the following:
- 1.Do you think steps 1 and 2 could be done without using subqueries?

I can not think that these question can be solved without subqueries. If we want to try it without subqueries, it colud be taken a lot of time and lead to confusion and might no result come. Although while performing Subqueries there is also lot of mistake I did and but once Data analyst perfect it in, than its easy to use and have fast result.

- 2. When do you think subqueries are useful?
 - When we want Queries to be cost effective and quick result arrived.
 - When we want only limited result to be include from multiple table.