June 1, 2022

Exercise 3.8

STEP 1

Find the average amount paid by the top 5 customers.

5. Copy-paste your queries and the final data output from pgAdmin 4 into your answers document.

```
SELECT AVG(total_amount_paid) AS average
FROM (SELECT A.customer_id,
A.first_name,
A.last_name,
D.country,
C.city,
SUM(E.amount) AS "total_amount_paid"
FROM customer A
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
INNER JOIN payment E ON A.customer_id = E.customer_id
WHERE C.city IN ('Aurora','Acua','Citrus Heights','Iwaki','Ambattur','Shanwei','So
Leopoldo','Teboksary','Tianjin','Cianjur')
GROUP BY A.customer_id, D.country, C.city
ORDER BY "total_amount_paid" DESC
LIMIT 5) AS "total_amount_paid"
```

Final Data Output
105.5540000000000000

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

Copy-paste your query and the data output into your "Answers 3.8" document.

```
SELECT DISTINCT(D.country),
COUNT(A.customer_id) AS "all_customer_count",
COUNT(DISTINCT D.country) AS "top_customer_count"
FROM customer A
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
LEFT JOIN (SELECT A.customer_id,
A.first_name,
```

```
A.last_name,
D.country,
C.city,
SUM(E.amount) AS "total_amount_paid"
FROM customer A
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
INNER JOIN payment E ON A.customer_id = E.customer_id
WHERE C.city IN ('Aurora','Acua','Citrus Heights','Iwaki','Ambattur','Shanwei','So
Leopoldo','Teboksary','Tianjin','Cianjur')
GROUP BY A.customer_id, D.country, C.city
ORDER BY "total_amount_paid" DESC
LIMIT 5) AS top_5_customers
ON D.country=top_5_customers.country
GROUP BY D.country, top_5_customers.country
ORDER BY all_customer_count DESC
LIMIT 5
```

Rank	Country	all_customer_count	top_customer_count
1	"India"	60	1
2	"China"	53	1
3	"United States"	36	1
4	"Japan"	31	1
5	"Mexico"	30	1

STEP 3

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

Step 1 could have been done without a subquery as we were only seeking to find the average of the top 5 customers, no matter which country. Step 2 could only have been done with a subquery as we were looking for how many of the top 5 customers were based in each country, multiple tables.

When do you think subqueries are useful?

Subqueries are useful when you would like something from multiple tables, especially when the tables are constantly being updated.