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

1. Copy the query you wrote in step 3 of the task from Exercise 3.7: Joining Tables of Data into the Query Tool. This will be your subquery, so give it an alias, "total_amount_paid," and add parentheses around it.
2. Write an outer statement to calculate the average amount paid.
3. Add your subquery to the outer statement. It will go in either the SELECT, WHERE, or FROM clause. (Hint: When referring to the subquery in your outer statement, make sure to use the subquery's alias, "total_amount_paid".)
4. If you've done everything correctly, pgAdmin 4 will require you to add an alias after the subquery. Go ahead and call it "average".
5. Copy-paste your queries and the final data output from pgAdmin 4 into your answers document.

Query | Query History

```
SELECT AVG (total_payment) AS average
FROM
(SELECT A.customer_id,
A.first_name,
A.last_name,
D.country,
C.city,
SUM (E.amount) AS total_payment
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 D.country_id= C.country_id
INNER JOIN payment E on A.customer_id = E.customer_id
WHERE city IN ('Aurora', 'Acua', 'Citrus Heights', 'Iwaki', 'Ambattur
GROUP BY A.customer_id, D.country, C.city
ORDER BY SUM (E.amount) DESC
LIMIT 5) AS total_amount_paid;
```

	average numeric
1	105.5540000

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

Query | Query History

```
SELECT DISTINCT(A.country),
COUNT (DISTINCT D.customer_id) AS all_customer_count,
COUNT (DISTINCT A.country) AS top_customer_count
FROM country A
INNER JOIN city B ON A.country_id = B.country_id
INNER JOIN address C ON B.city_id = C.city_id
INNER JOIN customer D ON C.address_id = D.address_id
LEFT JOIN
(SELECT A.customer_id,
A.first_name,
A.last_name,
D.country,
C.city,
SUM (E.amount) AS total_payment
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 D.country_id= C.country_id
INNER JOIN payment E on A.customer_id = E.customer_id
WHERE 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 SUM (E.amount) 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	top_customer_count bigint
1	India	60	1
2	China	53	1
3	United States	36	1
4	Japan	31	1
5	Mexico	30	1

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

- Do you think steps 1 and 2 could be done without using subqueries?
  - The first query can be done without a subquery While the second query would need subqueries as result from different table is needed
- When do you think subqueries are useful?
  - When we need to filter the results set of another query that is constantly changing