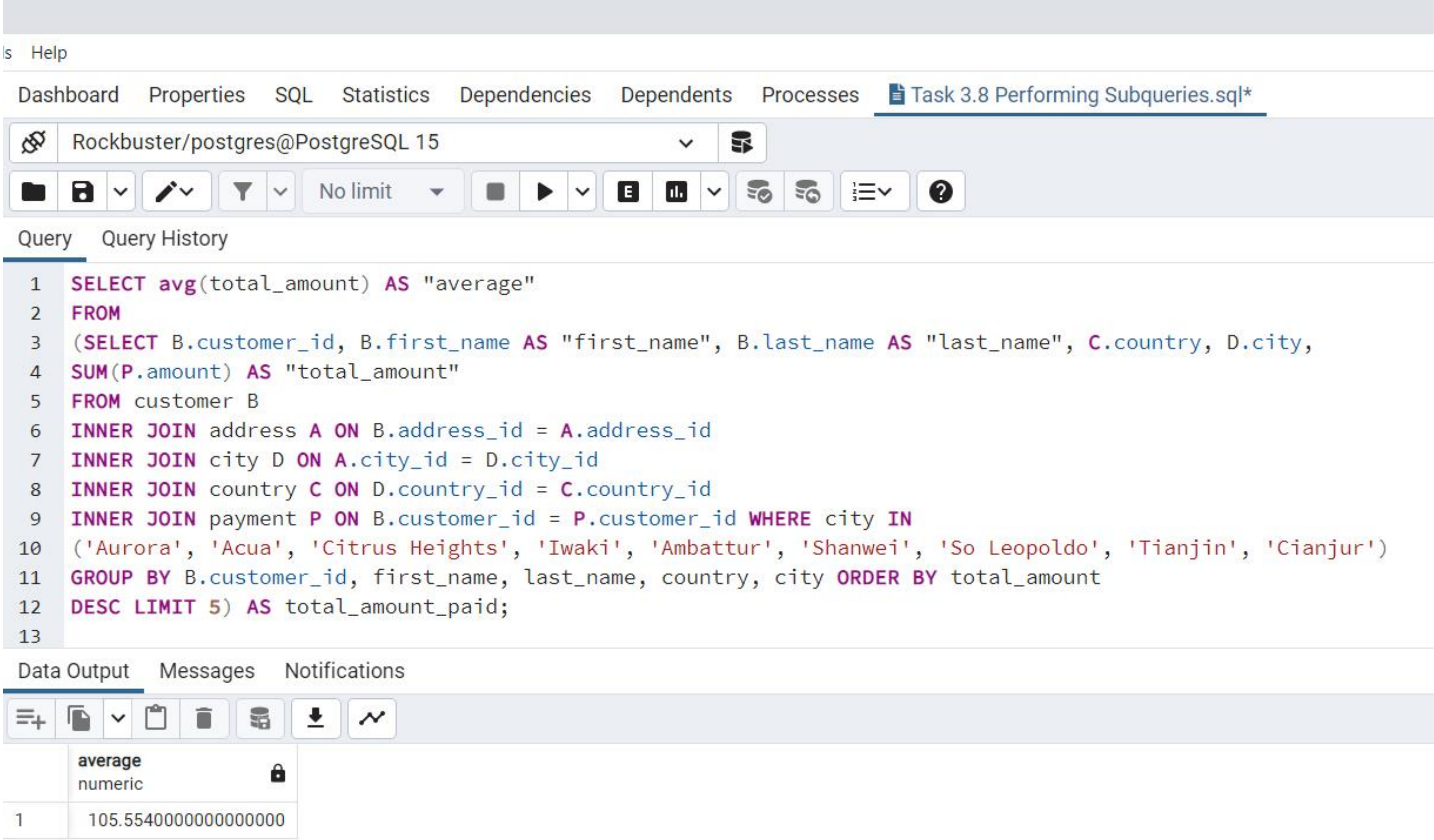
Performing Subqueries

Step 1

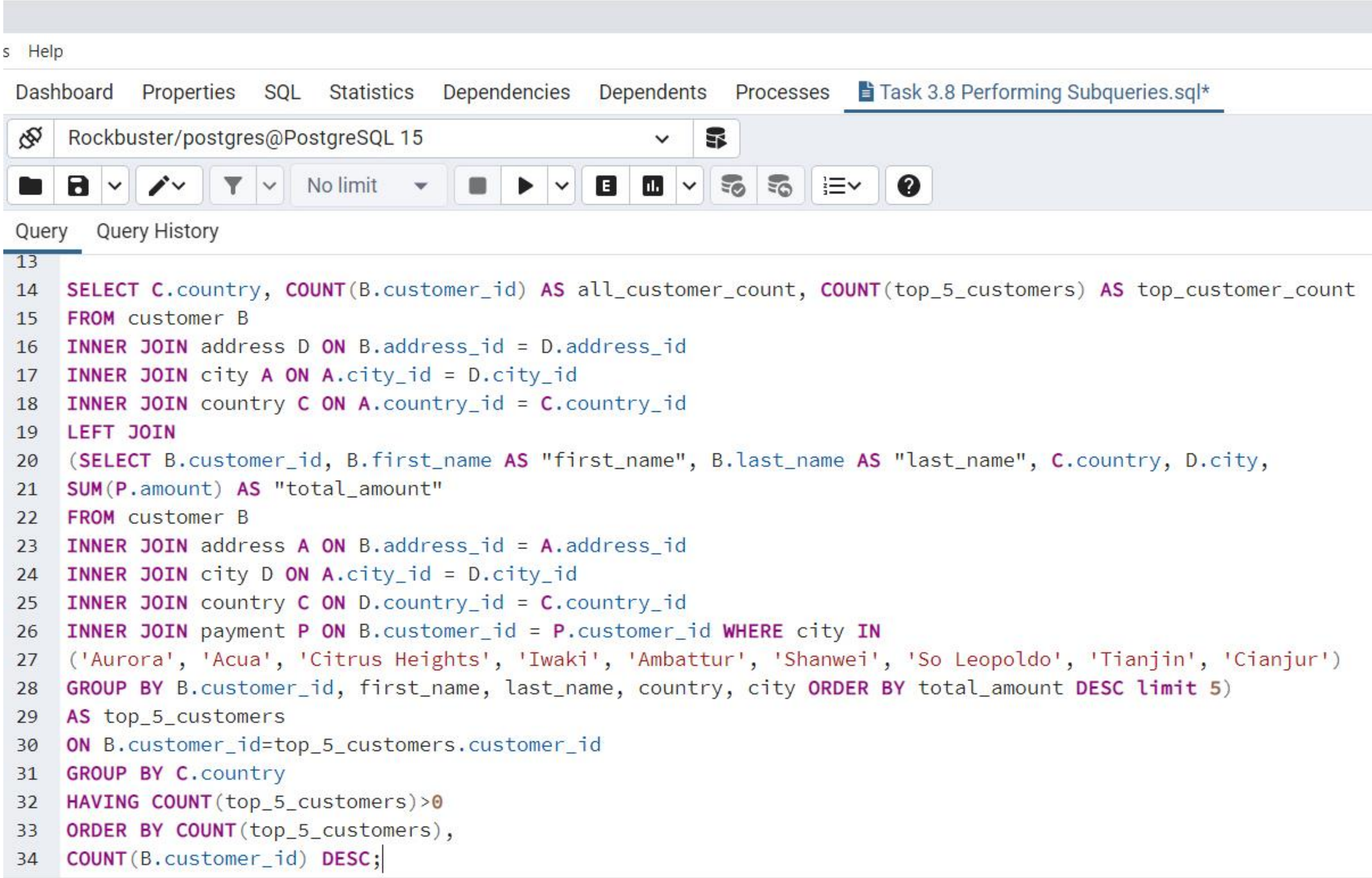


```sql
SELECT avg(total_amount) AS "average"
FROM
(SELECT B.customer_id, B.first_name AS "first_name", B.last_name AS "last_name", C.country, D.city,
SUM(P.amount) AS "total_amount"
FROM customer B
INNER JOIN address A ON B.address_id = A.address_id
INNER JOIN city D ON A.city_id = D.city_id
INNER JOIN country C ON D.country_id = C.country_id
INNER JOIN payment P ON B.customer_id = P.customer_id WHERE city IN
('Aurora', 'Acua', 'Citrus Heights', 'Iwaki', 'Ambattur', 'Shanwei', 'So Leopoldo', 'Tianjin', 'Cianjur')
GROUP BY B.customer_id, first_name, last_name, country, city ORDER BY total_amount
DESC LIMIT 5) AS total_amount_paid;
```

```
    average
    numeric
1   105.5540000000000000
```

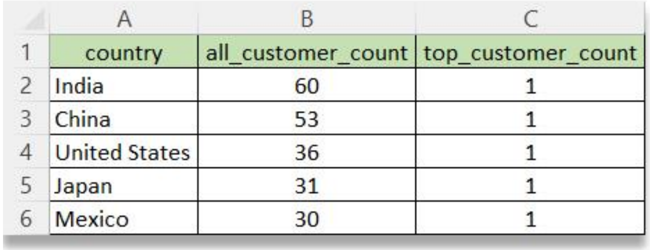
```
SELECT avg(total_amount) AS "average"
FROM
(SELECT B.customer_id, B.first_name AS "first_name", B.last_name AS "last_name", C.country, D.city,
SUM(P.amount) AS "total_amount"
FROM customer B
INNER JOIN address A ON B.address_id = A.address_id
INNER JOIN city D ON A.city_id = D.city_id
INNER JOIN country C ON D.country_id = C.country_id
INNER JOIN payment P ON B.customer_id = P.customer_id WHERE city IN
('Aurora', 'Acua', 'Citrus Heights', 'Iwaki', 'Ambattur', 'Shanwei', 'So Leopoldo', 'Tianjin', 'Cianjur')
GROUP BY B.customer_id, first_name, last_name, country, city ORDER BY total_amount
DESC LIMIT 5) AS total_amount_paid;
```

Step 2



```

SELECT C.country, COUNT(B.customer_id) AS all_customer_count, COUNT(top_5_customers) AS top_customer_count
FROM customer B
INNER JOIN address D ON B.address_id = D.address_id
INNER JOIN city A ON A.city_id = D.city_id
INNER JOIN country C ON A.country_id = C.country_id
LEFT JOIN
(SELECT B.customer_id, B.first_name AS "first_name", B.last_name AS "last_name", C.country, D.city,
SUM(P.amount) AS "total_amount"
FROM customer B
INNER JOIN address A ON B.address_id = A.address_id
INNER JOIN city D ON A.city_id = D.city_id
INNER JOIN country C ON D.country_id = C.country_id
INNER JOIN payment P ON B.customer_id = P.customer_id WHERE city IN
('Aurora', 'Acua', 'Citrus Heights', 'Iwaki', 'Ambattur', 'Shanwei', 'So Leopoldo', 'Tianjin', 'Cianjur')
GROUP BY B.customer_id, first_name, last_name, country, city ORDER BY total_amount DESC limit 5)
AS top_5_customers
ON B.customer_id=top_5_customers.customer_id
GROUP BY C.country
HAVING COUNT(top_5_customers)>0
ORDER BY COUNT(top_5_customers),
COUNT(B.customer_id) DESC;
```



	A	B	C
1	country	all_customer_count	top_customer_count
2	India	60	1
3	China	53	1
4	United States	36	1
5	Japan	31	1
6	Mexico	30	1

```
SELECT C.country, COUNT(B.customer_id) AS all_customer_count, COUNT(top_5_customers) AS top_customer_count
FROM customer B
INNER JOIN address D ON B.address_id = D.address_id
INNER JOIN city A ON A.city_id = D.city_id
INNER JOIN country C ON A.country_id = C.country_id
LEFT JOIN
(SELECT B.customer_id, B.first_name AS "first_name", B.last_name AS "last_name", C.country, D.city,
SUM(P.amount) AS "total_amount"
FROM customer B
INNER JOIN address A ON B.address_id = A.address_id
INNER JOIN city D ON A.city_id = D.city_id
INNER JOIN country C ON D.country_id = C.country_id
INNER JOIN payment P ON B.customer_id = P.customer_id WHERE city IN
('Aurora', 'Acua', 'Citrus Heights', 'Iwaki', 'Ambattur', 'Shanwei', 'So Leopoldo', 'Tianjin', 'Cianjur')
GROUP BY B.customer_id, first_name, last_name, country, city ORDER BY total_amount DESC limit 5)
AS top_5_customers
ON B.customer_id=top_5_customers.customer_id
GROUP BY C.country
HAVING COUNT(top_5_customers)>0
ORDER BY COUNT(top_5_customers),
COUNT(B.customer_id) DESC;
```

Step 3

Answer A

Yes, I believe steps 1 and 2 could be completed using join function instead of subqueries. the dat can be searched, filtered, and sorted more efficiently when join is used.

Answer B

The purpose of subqueries is to return data that will be used as a condition in a main query to further restrict the data retrieved. They are useful when dealing with multiple queries.