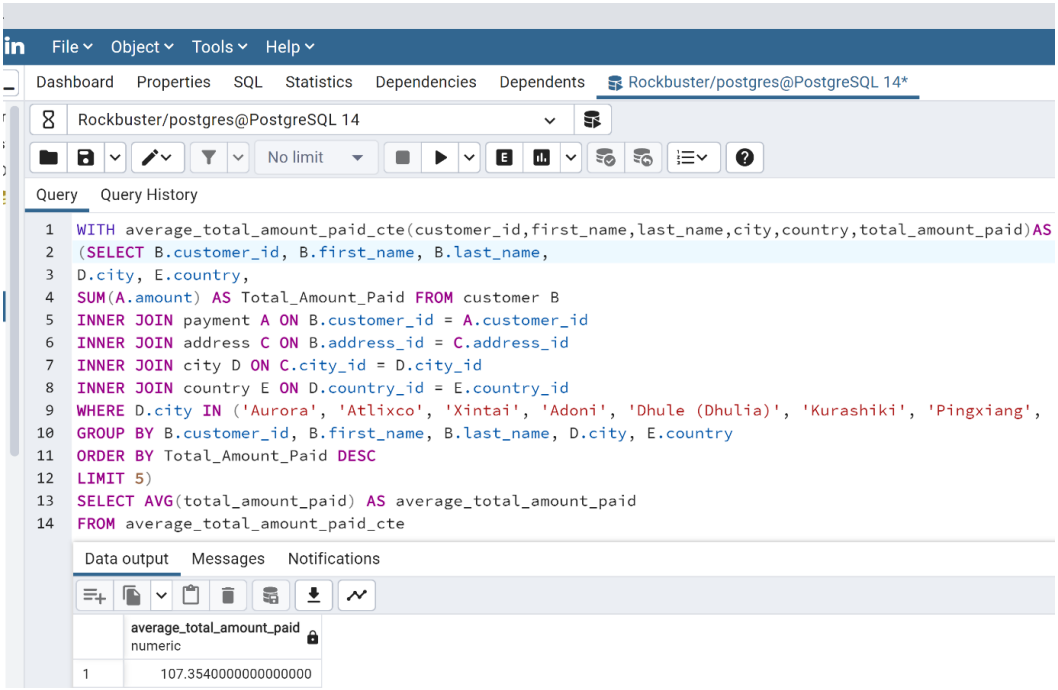
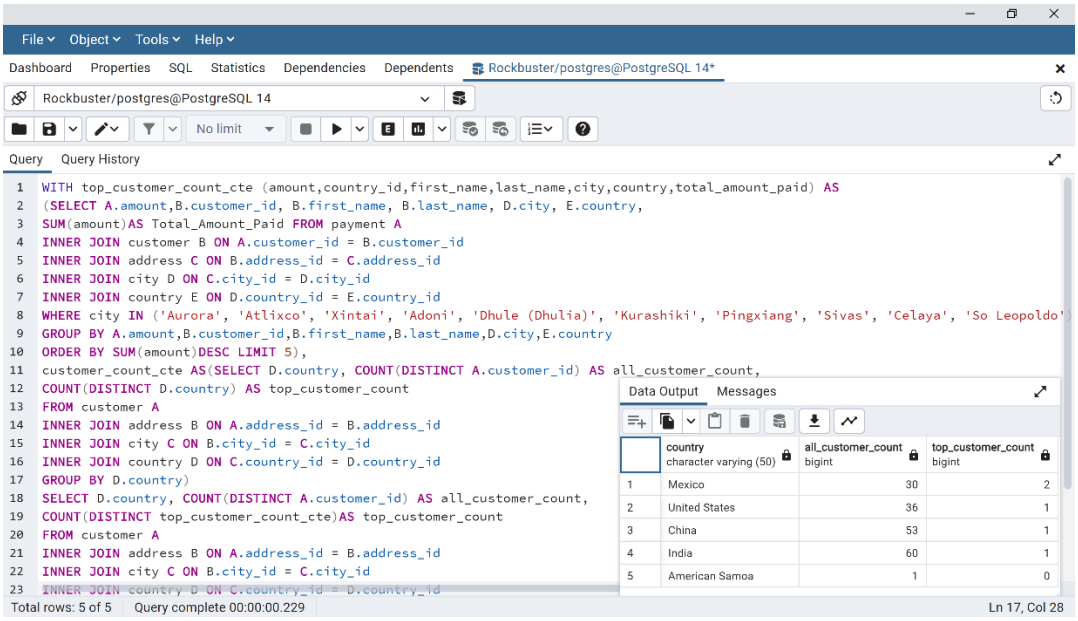
3.9: Common Table Expressions

Step 1: Answer the business questions from step 1 and 2 of task 3.8 using CTEs

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



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



- Explain how you approached this step.

  The first step is to copy the query for (finding the average amount paid by the top 5 customers) from the previous task and remove the OUTER query then adding the cte query. The cte query is added by using the WITH function as well as adding the AS function at the end of the syntax and adding parenthesis around inner query. The second step is the same as the first however 2 ctes are added to which include one for the count of customers and the other for count of the top customers.

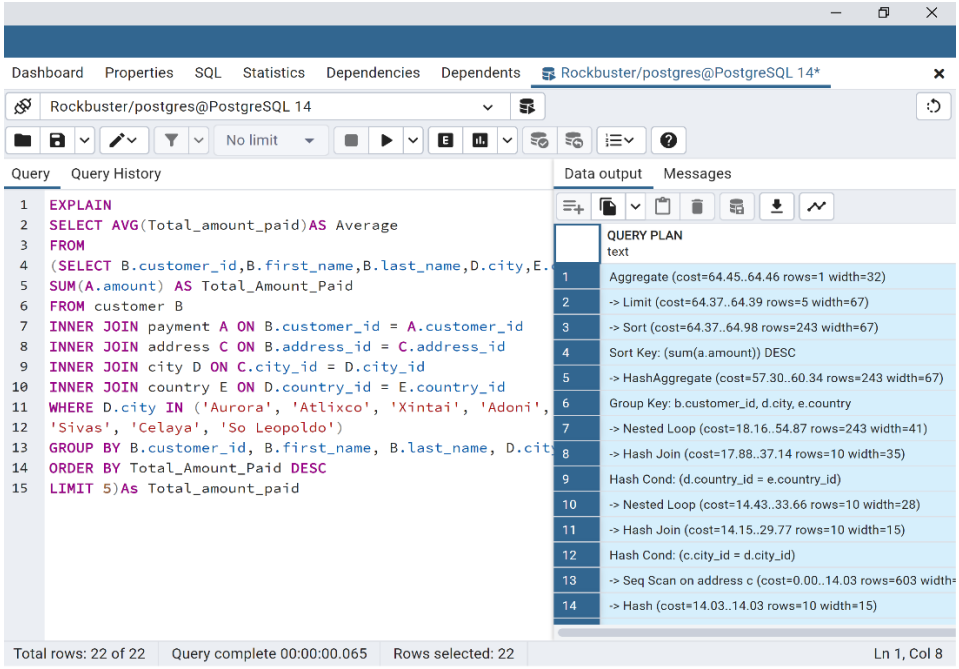
Step 2: Compare the performance of your CTEs and subqueries.

1. Which approach do you think will perform better and why?

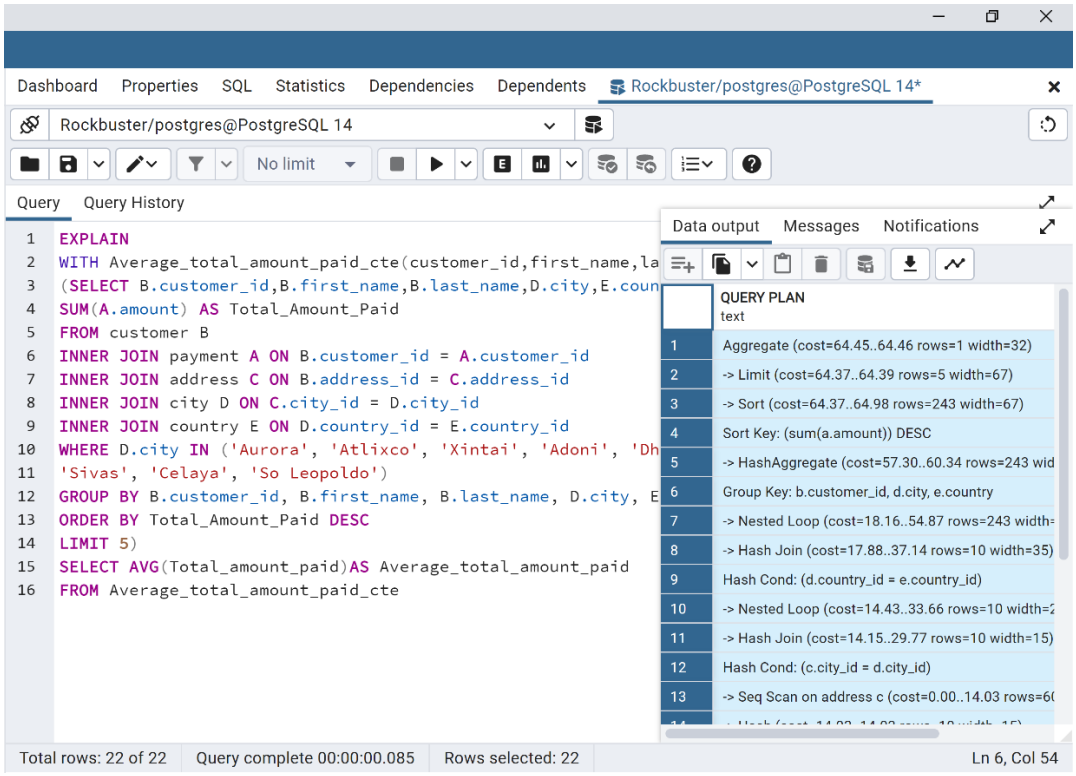
   I think the subquery approach is better as it is easier to write however performance wise they seem to be the same.

2. Compare the costs of all the queries by creating query plans for each one.

Subquery task1.

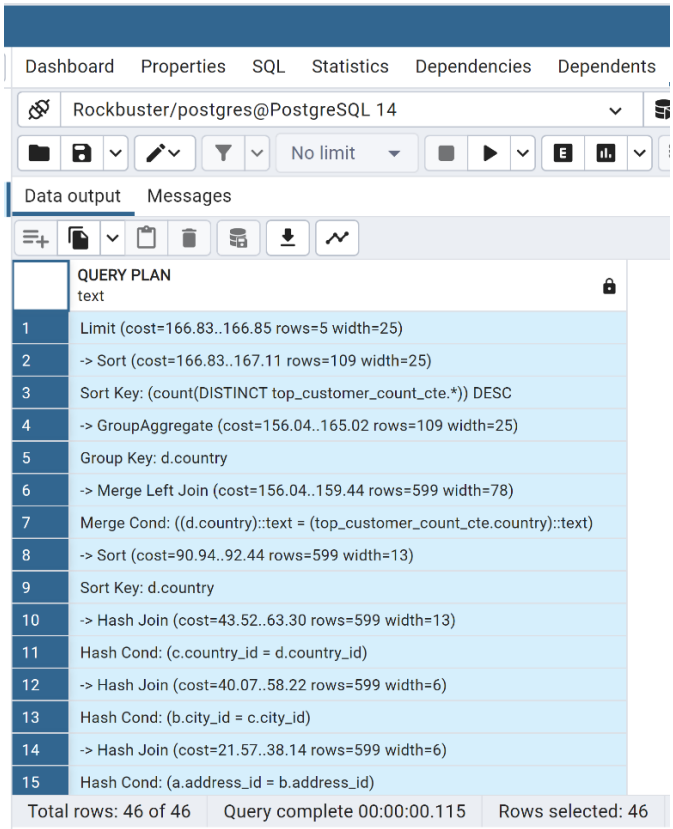


Cte Task1.

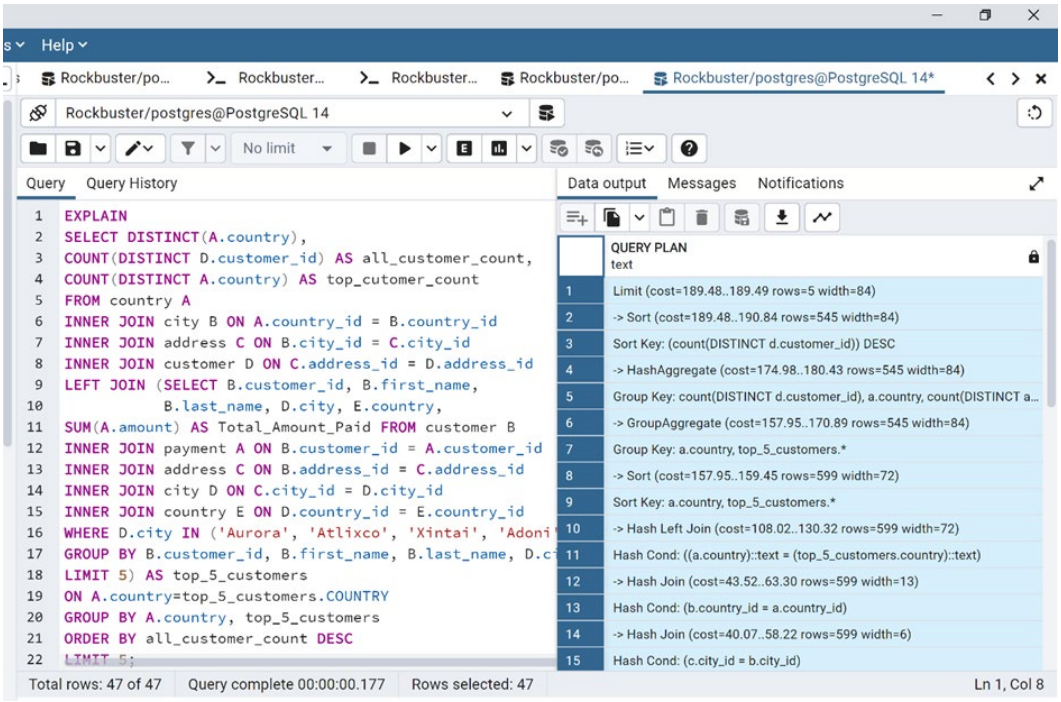


The costs for both subquery and cte approach are the same for task1 which is 64.45.

Subquery Task 2.



Cte Task 2.



3. Did the results surprise you? Write a few sentences to explain your answer.

   The cost for the subquery in task 2 is 166.83, which is lower than the cte cost which is 189.48 for the same task. I presume that the added syntax for the cte also adds to the cost of the query.

Step 3:

Challenges faced when replacing subqueries with CTEs.

Replacing subquery with cte was a bit challenging because the cte stamen had to added multiple times within the query thus posing a challenge of where the statement would need to be added especially on the second task. It therefore means the more complex the query is the more challenging it would be to add the cte part.