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Data Immersion 3.9

Common Table Expressions

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

**1 & 2.**

*Step 1* as CTE

A screenshot of a computer

AI-generated content may be incorrect.

*Step 2* as CTEA screenshot of a computer

AI-generated content may be incorrect.

A screenshot of a computer

AI-generated content may be incorrect.

**3. Write 2 to 3 sentences explaining how you approached this step, for example, what you did first, second, and so on.**

In order to convert my subqueries into CTE’s, I first referenced the example of a CTE in the read portion of this exercise. I took note of the similarities in the structure of the CTE as compared to my subquery. After realizing that I would need to enter the table joins for each CTE, I began to convert my query for top states, cities, and customers into their own CTEs. After trial and error, I made queries for the tables requested by Rockbuster.

**Step 2:**

**1.** I think that the subquery will perform better because there are fewer table joins. This is just an educated guess; I wouldn’t be surprised either way.

**2.** Query plans were observed.

**3.8 *1*: 3.9 *1*:**

** **

**3.8 *2*: 3.9 *2*:**

 

**3.**

**3.8 *1*: 3.9 *1*:**

** **

**3.8 *2*: 3.9 *2*:**

 

**4.** The results of the query plans were surprising. While I expected a small increase in cost using CTEs, but not such a drastic increase in cost from using CTEs. The total execution times on the other hand are roughly the same, which is also surprising. It reinforces the fact that query plans and real-world performance don’t always align.

**Step 3:**

One of the main challenges I faced when replacing my subqueries with CTEs was restructuring the query in a way that maintained the correct data flow. Unlike subqueries, which are nested directly within the main query and resolved inline, CTEs must be defined before the main SELECT statement and referenced afterwards. This meant I had to be more intentional about naming each step and ensuring that each CTE contained all necessary joins and filters to function independently. Debugging errors was more complex now as well, considering the query is split between so many different lines and layers.