SQL Aggregation Practice Module

Step 3: Different Uses of Aggregation (Research & Reflect) solution:

1. **What is the difference between GROUP BY and ORDER BY?**

   - GROUP BY: Groups rows to apply aggregate functions like SUM, COUNT, AVG.
   - ORDER BY: Sorts the final result set (e.g., by name, score).

2. **Why do we use HAVING instead of WHERE when filtering aggregate results?**

   - **Where:** Filters rows before grouping.
   - **Having:** Filters results after aggregation.

3. **What are common beginner mistakes when writing aggregation queries?**

   - Using Where with aggregate functions instead of Having.
   - Forgetting to group by non-aggregated columns.
   - Not aliasing results, leading to confusing output.

4. **When would you use COUNT (DISTINCT ...), AVG(...), and SUM(...) together?**

   When you want to analyze user behavior, like:
   - COUNT (DISTINCT Student ID) = unique users
   - AVG (Completion Percent) = average progress
   - SUM(Price) = total revenue

5. How does GROUP BY affect query performance, and how can indexes help?

- Large groupings slow queries.
- Indexes on grouped columns improve performance and response time.

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