



Reflection Results

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Task 1.3 - Our Query

- **Experience:**
 - Took database courses during bachelor's degree.
 - Use of ORMs over time led to a decline in SQL construction skills.
- **Development Duration & Steps:**
 - Query construction in Task 1.1 took one day.
 - Involved analyzing the database schema, reading PostgreSQL documentation, fixing SQL errors, and execution.
- **Quality of Implementation:**
 - Results from Task 1.1 were less accurate compared to the LLM-generated version.
 - Query execution was slower, indicating inefficiency.
- **Automation Tool:**
 - None used.



Task 1.3 - LLMs Query

- **Experience:**
 - Familiar with using ChatGPT and adept at crafting prompts to achieve desired results.
 - Gained familiarity with PostgreSQL before using ChatGPT effectively.
- **Duration & Steps:**
 - Achieved the final result in a 20-minute session with ChatGPT, including query executions.
 - Tested every query given to us by ChatGPT and did some error fixing
 - Also, did some result analysing to interpret the correctness of SQL queries
- **Quality:**
 - ChatGPT's implementation outperformed ours in terms of both accuracy and performance.
- **Misunderstandings:**
 - Initially, ChatGPT used the **post** table in its query, which caused execution errors.
 - Proper prompts directed it to use the correct tables.
 - The initial query was inefficient; prompting for optimization resulted in a more efficient version.
- **Automation Tools:**
 - None used.



Task 2.3

- **Query Development Process:**
 - The query development process in sub-tasks 1 and 2 was not straightforward and required iterations to optimize the query and achieve the desired result.
- **Role of LLM Automation:**
 - The LLM can integrate into an interactive query development process, acting as a source of ground truth to compare and refine human-generated queries for better optimization.
- **Efficiency Through LLM:**
 - With accurate and concise prompts, the LLM can leverage its vast knowledge to create accurate and efficient queries, speeding up the development process through automation.



Task 3.2

- **Result:**
 - The LLM made a good effort in creating the execution plan.
 - However, it gave a **hypothetical execution plan**, which looks like the structure of a real PostgreSQL execution plan but is not a real one.
 - The output was more like a template, so it is not fully usable for real-world tasks.
- **Explanatory Value:**
 - The LLM's explanation was helpful for understanding execution plans.
 - It showed a template of how an execution plan should look and explained its parts.
 - It also explained the query the plan was based on, which added clarity.
 - Query execution plan help in further optimization, query debugging and index optimization.
 - Fundamental difference.

