**SQL query from table names - Continued**

Query Comparisons

1. Which employees studied at Harvard?

Old Prompt: Returned a correct SQL query using a join between employees and studies.

New Prompt: Same SQL result.

Result: Both correct.

2. List all employees with their latest salary.

Old Prompt: Attempted a correlated subquery, but lacked proper structure and aliasing.

New Prompt: Correctly structured correlated subquery using clear table references.

Result: New prompt provided a more accurate and executable query.

3. Find the total number of employees per institution.

Old Prompt: Used GROUP BY and COUNT(DISTINCT) correctly.

New Prompt: Same logic and result.

Result: Both correct.

Findings

Both prompts handled simple queries effectively. However, the new prompt consistently produced more reliable results in complex queries, especially those involving subqueries or multiple joins. The inclusion of SQL-style schemas and few-shot examples gave the model clearer context, leading to more robust SQL generation. No hallucinations were observed, but the old prompt occasionally produced fragile or incomplete logic.

What I Learned

Prompt engineering significantly impacts LLM performance. The structured approach used in the new prompt improved query accuracy, especially in non-trivial scenarios. Few-shot examples and explicit schemas make the model’s outputs more predictable and production-ready. For real-world SQL generation, the new prompt structure is more effective and dependable.