# Mini project 1

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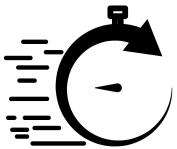
# our knowledge

- only basic SQL knowledge


- regular use of LLMs such as ChatGPT

# task 1

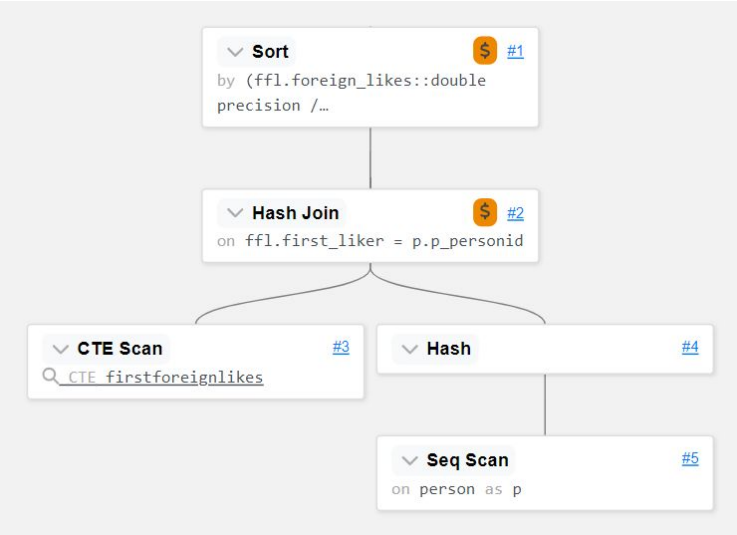
- our own implementation
  - development duration: rather long (~5 hours)
  - writing the query: splitting query into little subparts
  - little errors that were difficult to spot
  - needed a familiarization period
- ChatGPT
  - initially problematic (using GPT4-mini free version because daily limit was used up)
  - wrong output or very long running queries (5+min)
  - manually prompting ChatGPT to fix errors we noticed
  - after being told about the mistake usually easy fix by ChatGPT
- own implementation runs faster than ChatGPT's implementation



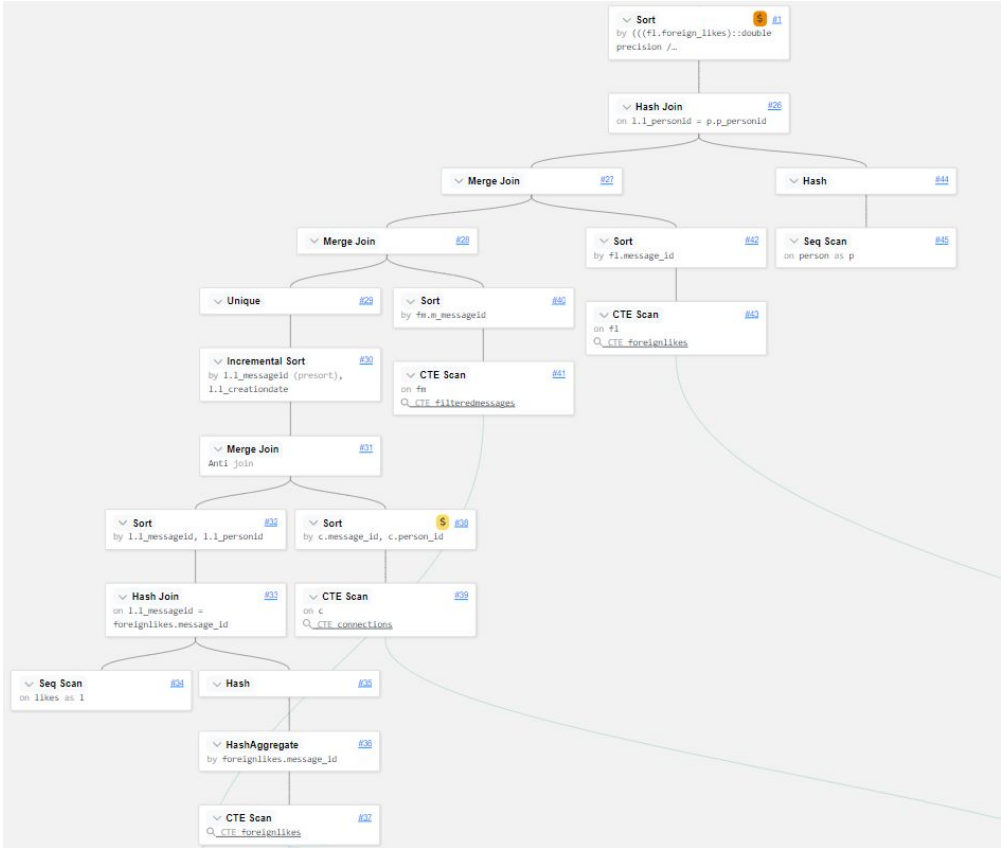
# task 2

- our own implementation
  - took a long time (1+ hour)
  - big struggles in debugging query (psql shell), too little SQL experience
- ChatGPT’s implementation
  - worked immediately
  - 1 prompt -> correct solution
- our own implementation outperforms ChatGPT’s implementations
- good prompting is the key to good queries

# task 3 - execution plan visualizations




ChatGPT↑ vs Actual→



# task 3

- ChatGPT’s plan gets the base operations correct
- however way too little detail
- no PostgreSQL-specific optimizations like Merge Anti Join
- Execution Plan generation is already a highly automated process
- no reason to use LLM for this task

- this task is fully automated
- task 1 and 2 are somewhat automated, but still require human oversight

# Discussion

Your findings suggest that good prompting is critical for effective use of LLMs. Simply prompting the task and the schema did not work for us.

- Did it worked for you?

- The rise of LLMs might change the skills required for developers, particularly with respect to prompt engineering versus traditional coding expertise. If you have limited time to expand your knowledge for a new task, should you focus on mastering prompting techniques or deepening your coding skills?

# Discussion

Our first solution was much faster than the generated one.

- What use is automation if the results delivered are of poorer quality?