Database Systems

CMPT 308

Text-to-SQL Project - 100 points

Goal

To learn about the exciting (and terrifying) prospect of Large Language Model (LLM) interfaces to SQL-based systems. We've spent the first half of our semester querying relational databases with SQL, but not everybody has the pleasure of taking this class. For those unfortunate people, and countless others who do not know SQL yet seek to turn data into information, an LLM **may** be the answer. Let's see . . .

Instructions

Use ChatGPT or a similar LLM to answer Lab 6 questions 1 — 7. Then grade its output and fix anything that it got wrong. Think about a way to measure how much fixing you had to do and how wrong (or right) its results were.

For each of the questions give the following:

- The prompt you used, or ended up using after several "prompt engineering" iterations.
- The SQL produced by the LLM
- The results of running the LLM's SQL in our CAP database in PostgreSQL
- Your grade
- Your fixes
- A measure of how much fixing you had to do
- Your results (which should match the correct output for Lab 6)
- A measure of how different your (presumably correct) results are compared to the LLM's results.

Deliverables

Create a slide presentation as if you were going to teach this to our class. (Don't worry, you're not going to, as I need all the attention myself.) But put yourself in that mindset as you develop your slides. You never know truly something at a deep level until you teach it to others.

- Slide 0 : Title, your name, the date, and what LLM you used (name and version)
- Slide 1 : Your grading methodology
- Slides 2 — 8 : The experiments
- Slide 9 : Your opinion and conclusion about how well this worked or did not work
- Slide 10 - References, if any

Resources

- OpenAI, Google, Microsoft… the usual suspects
- https://arxiv.org/abs/2305.03111
- Your own research and experiments

Submitting

Submit your work as a PDF. (Only PDF files will be accepted.) Push it to your GitHub repository **before** the date at which it is due (see syllabus). Remember, neatness counts. So does accuracy, spelling, grammar, correctness, and essentially everything else. It only has to be perfect. Make it so.