Writing SQL queries to do tasks described in natural language

The skill to learn will be conversion of natural language questions and tasks into SQL queries in the context of a given database.

There will be a global-before-local phase which will be a demonstration of the full workflow; decomposition, SQL writing, testing, and refinement; so the learner sees the end-to-end process and there is context to the tasks given to him. The mode of learning in this phase is mostly **modeling** based on the expert's process. There will then be increasingly complex stages of the apprenticeship, with the final stage being the full practice. This progression is a form of **scaffolding** and **coaching.**

1. SQL Writing
   Learner writes SQL directly from very simple natural language queries with the table schemas that are needed, already provided. After learning this skill, the apprentice becomes an asset to the master since the simpler problems can be given to him. For a deeper analysis of problems, the apprentice may even contact the client directly. This pushes the learner into a Community of Practice from the start.

2. Decomposition + SQL
   Learner breaks the task into procedural steps before writing SQL. This stage enforces **articulation** of reasoning and **exploration**. This skill enables the apprentice to take on more complicated conversions than before.

3. Table search + decomposition + SQL
   This is essentially the full workflow, but the focus is mostly on learning how to search relevant tables from the full database.

4. Full Workflow
   Learner independently performs decomposition, table selection, SQL writing, testing and starts to interact with the clients directly, developing an identity. The Instructor minimises scaffolding and coaching.

Reflection will be used to facilitate learning at any stage. After each task, the learner gets to compare their queries and outputs with instructor-provided examples.