Chat Assistant for SQLite Database

### Note: Please record your intro using [this link](https://interviews.tacnique.com/async-interview/0c2a488c-d009-40a1-a90c-ca0d7fff5289/invite) if you have not already.

## Objective

To evaluate your ability to design, implement, and deploy a chat assistant that interacts with an SQLite database to answer user queries.

## Scope and Requirements

### Database

Create an SQLite database file containing two tables with the following schema:

You are expected to use this database as the foundation for the assignment. Feel free to add more data and columns.

**Table 1: Employees**

| ID | Name | Department | Salary | Hire\_Date |
| --- | --- | --- | --- | --- |
| 1 | Alice | Sales | 50000 | 2021-01-15 |
| 2 | Bob | Engineering | 70000 | 2020-06-10 |
| 3 | Charlie | Marketing | 60000 | 2022-03-20 |

**Table 2: Departments**

| ID | Name | Manager |
| --- | --- | --- |
| 1 | Sales | Alice |
| 2 | Engineering | Bob |
| 3 | Marketing | Charlie |

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### Functionality

Build a Python-based chat assistant that:

* Accepts natural language queries.
* Converts queries into SQL to fetch data from the provided SQLite database.
* Responds to the user with clear, formatted answers.

#### Supported Queries:

The chat assistant must support the following types of queries:

* “Show me all employees in the [department] department.”
* “Who is the manager of the [department] department?”
* “List all employees hired after [date].”
* “What is the total salary expense for the [department] department?”
* & more…

#### Error Handling:

Ensure that the assistant can:

* Gracefully handle invalid queries.
* Return meaningful messages when no results are found.
* Handle incorrect department names or invalid input formats.

### Deliverables

* Hosted Link: A public URL to access and test your deployed chat assistant.
* Cod**e Repository:** A GitHub (or equivalent) repository containing:
  + The source code for the assistant.
  + The database file
  + A README.md file with:
    - An explanation of how the assistant works.
    - Steps to run the project locally.
    - Known limitations or suggestions for improvement.

### Evaluation Criteria

* **Correctness:** Does the assistant correctly answer the supported queries?
* **Deployment:** Is the application hosted properly and accessible without issues?
* **Code Quality:** Is the code modular, readable, and well-documented?
* **Error Handling:** Does the assistant gracefully handle edge cases and invalid inputs?
* **User Experience:** Is the hosted application intuitive and user-friendly?

### Notes for Candidates

* Use Python and any framework or libraries of your choice (e.g., Flask, FastAPI).
* Ensure that your deployed version is functional and provides a seamless user experience.
* Focus on simplicity, clarity, and robustness in your solution.
* This solution needs to work without any third-party API. You may download and use open-source models/libraries.