project\_text2sql/

├─ README.md

├─ requirements.txt

├─ .gitignore

├─ .env.example

├─ data/

│ ├─ sakila\_master.db

│ └─ northwind.db # optional, large files ideally not in git

├─ app/

│ └─ app.py # Streamlit UI ONLY (moved out of your main file)

├─ src/

│ └─ text2sql/ # Python package

│ ├─ \_\_init\_\_.py

│ ├─ config.py # reads env (DB\_DSN, etc.)

│ ├─ core/

│ │ ├─ \_\_init\_\_.py

│ │ └─ query\_engine.py # main Text2SQL/LangGraph orchestration

│ ├─ agents/

│ │ ├─ \_\_init\_\_.py

│ │ └─ text2sql\_agent.py

│ ├─ database/

│ │ ├─ \_\_init\_\_.py

│ │ ├─ factory.py # get\_engine()/get\_connection() via DSN

│ │ ├─ sqlite.py # current backend

│ │ ├─ mysql.py # stub for later

│ │ └─ postgres.py # stub for later

│ └─ utils/

│ ├─ \_\_init\_\_.py

│ └─ helpers.py

└─ tests/

└─ test\_smoke.py # minimal sanity test

> do not code yet, but how do you suggest the next step to expand the project

● Here are suggested next steps to expand the project:

1. Multi-Database Support

- Implement database factory pattern in src/text2sql/database/factory.py

- Create specific adapters for PostgreSQL/MySQL in their respective files

- Add database-specific SQL dialect handling

- Update config to support multiple connection strings

2. Enhanced Query Engine

- Build src/text2sql/core/query\_engine.py as the main orchestrator

- Add query validation and optimization

- Implement query history/caching

- Add query explanation capabilities

3. Advanced UI Features

- Database connection selector in Streamlit

- Query history sidebar

- Export results (CSV, JSON)

- Query performance metrics

- Visual query builder (drag-and-drop tables)

4. Robustness & Testing

- Comprehensive test suite in tests/

- Error handling for malformed queries

- Input validation and sanitization

- Database connection pooling

5. Production Features

- Docker containerization

- Configuration management

- Logging and monitoring

- API endpoints (FastAPI) alongside Streamlit

- Authentication/authorization

6. AI Enhancements

- Query optimization suggestions

- Natural language explanations of complex queries

- Auto-complete for table/column names

- Query pattern learning

Which direction interests you most for the portfolio project?