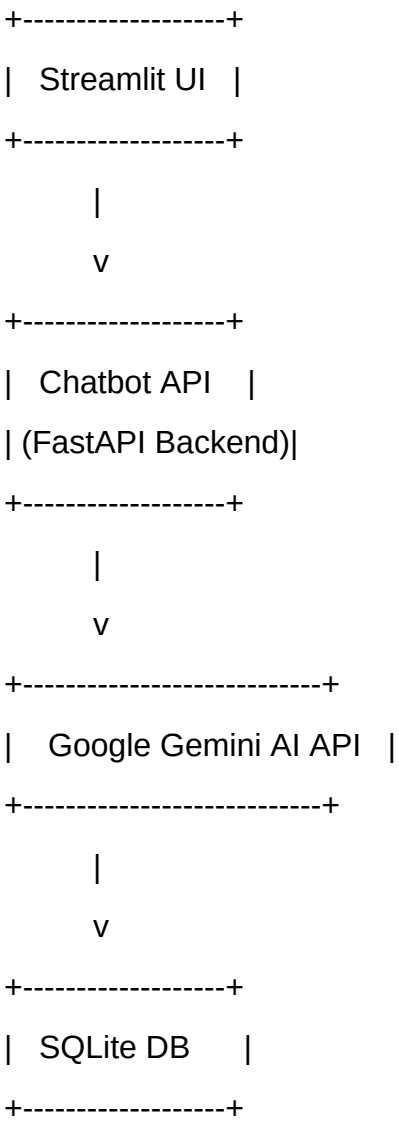
AI-Powered Language Learning Chatbot Documentation

1. Introduction

The AI-Powered Language Learning Chatbot is designed to help users improve their language skills by engaging in real-world conversational scenarios. It detects grammatical mistakes, corrects them, and provides explanations in an interactive and educational manner.

2. System Architecture

Architecture Diagram:



Explanation of Components:

- Streamlit UI: Provides an intuitive interface for users to interact with the chatbot.
- Chatbot API: Uses LangChain to communicate with Google Gemini AI for language correction and conversation.
- Google Gemini AI: Processes user input, detects mistakes, and generates corrected responses.
- SQLite Database: Stores user mistakes for future reference and learning.

3. Requirements

Software Requirements:
- Python 3.10+
- Streamlit
- LangChain
- SQLite3
- dotenv
- Google Gemini AI API Key

Installation Steps:
1. Clone the repository:
   git clone https://github.com/dveersingh/AI_language_chatbot.git
   cd AI_language_chatbot

2. Install dependencies:
   pip install -r requirements.txt

3. Create a .env file to store the API key:
   GOOGLE_API_KEY=your_google_api_key

4. Run the chatbot:
   streamlit run app.py

4. Features
- Real-world conversational scenarios: The chatbot sets up scenarios to enhance learning.
- Grammar correction: Detects mistakes, provides corrections, and explains the errors.

- Mistake tracking: Stores mistakes in a database for review and improvement.
- Multi-language support: Supports at least 10 languages.

5. Future Improvements
- Adding user authentication for personalized learning.
- Implementing an AI model for adaptive difficulty levels.
- Integrating speech recognition for spoken language practice.

6. Conclusion
This chatbot serves as an interactive tool for language learners, helping them enhance their proficiency through real-world conversation practice and AI-powered feedback.