**Overview**

This chatbot assists users in learning a new language by engaging in interactive conversations. It corrects users' mistakes in real-time, maintains a record of errors, and provides a review feature to help users track their progress.

**Features**

* Supports interactive language learning through conversations.
* Identifies and corrects grammatical and spelling mistakes.
* Stores mistakes in a MySQL database.
* Maintains session memory using LangChain to enhance user interaction.
* Allows users to review their past mistakes during the conversation.

**Setup**

**Database Configuration**

The chatbot connects to a MySQL database to store users' mistakes. The database setup includes:

* A mistakes table to log user errors and their corrections.
* A connection with mysql.connector that ensures stable database interaction.

CREATE TABLE IF NOT EXISTS mistakes (

id INT AUTO\_INCREMENT PRIMARY KEY,

user\_id VARCHAR(255),

mistake TEXT,

correction TEXT,

timestamp TIMESTAMP DEFAULT CURRENT\_TIMESTAMP

);

**OpenAI API Configuration**

The chatbot utilizes OpenAI's GPT-3.5 model to generate responses. The API key must be set correctly before running the chatbot:

OPENAI\_API\_KEY = "Enter Your Token Key"

openai.api\_key = OPENAI\_API\_KEY

**Key Functions**

**get\_session\_memory(session\_id)**

* Uses LangChain's ConversationBufferMemory to retain past messages for a more context-aware conversation.
* Creates a new session memory if the user is new.

**invoke\_chatbot(user\_input, session\_id)**

* Sends the user’s input to OpenAI’s GPT-3.5 model.
* The model responds as a language tutor, engaging in a natural conversation while correcting mistakes.
* Saves the interaction context to session memory.

**find\_differences(original, corrected)**

* Compares the original user input with the corrected response from the AI.
* Identifies incorrect words and their corrected forms.

**save\_mistake(user\_id, mistake, correction)**

* Logs mistakes and their corrections in the MySQL database.

**get\_mistakes\_summary(user\_id)**

* Retrieves the list of mistakes made by the user along with corrections for review.

**chatbot()**

* Initiates a language learning session.
* Prompts the user to enter their known and target languages.
* Engages in a conversation, correcting mistakes while storing them.
* Supports commands:
  + exit: Ends the chat session.
  + review: Displays the user's mistakes and corrections.

**Usage**

1. Run the script.
2. Enter user details (user ID, known language, target language, proficiency level).
3. Start chatting in the target language.
4. View corrections in real-time.
5. Type review anytime to see past mistakes.
6. Type exit to end the session.

**Conclusion**

This chatbot effectively simulates a human-like tutor, making language learning interactive and engaging. By tracking user mistakes, it offers personalized feedback, helping learners improve over time.