

# Wine Business Chatbot

[Github Link](#)

[Demo Video](#)

## 1) Overall approach:

- Extract and chunk text from a PDF
- Create a vector database (ChromaDB) with the chunks
- Use similarity search to find relevant information for user queries
- Generate responses using a language model (Gemini or Hugging Face)
- Present the chat interface using Streamlit

## 2) Frameworks/libraries/tools used:

- Streamlit: For creating the web interface
- ChromaDB: As the vector database for storing and retrieving text chunks
- Hugging Face: For embeddings and potentially for the language model
- Google's Generative AI (Gemini): As the main language model for generating responses
- PDFMiner: For extracting text from PDF
- spaCy: For text processing and sentence splitting
- LangChain: For various NLP tasks and integrations

## 3) Problems faced and solutions:

- SQLite version issues: The code imports pysqlite3 and replaces the default sqlite3 module, likely to address version compatibility issues with ChromaDB.
- Handling different chunk types: The code includes logic to handle various types of chunks (Document objects, dictionaries, etc.) when adding to ChromaDB.
- Context management: The chat history is stored in Streamlit's session state to maintain context across interactions.
- Error handling: There's basic error handling to guide users to contact the business directly if the chatbot can't answer a question.

#### **4) Future scope and potential features:**

- Multi-modal capabilities: Integrate image processing to handle questions about wine labels or vineyard images.
- Personalization: Implement user profiles to remember preferences and past interactions.
- Appointment booking: Add functionality to schedule wine tastings or tours directly through the chatbot.
- Real-time inventory: Connect to the wine inventory system to provide up-to-date availability information.
- Voice interface: Implement speech-to-text and text-to-speech for voice interactions.
- Multi-language support: Expand the chatbot to handle queries in multiple languages.
- Analytics dashboard: Create a backend dashboard for business owners to track common questions and user satisfaction.
- Integration with e-commerce: Allow users to purchase wines directly through the chatbot.
- Recommendation system: Implement a wine recommendation feature based on user preferences and past purchases.
- Social media integration: Allow sharing of wine recommendations or tasting notes on social platforms.