Problem Statement: Cricket Expert Chatbot (with LangSmith)

Build a Cricket Expert Chatbot using LangChain and a Retrieval-Augmented Generation (RAG) pipeline to answer questions about cricket players from a PDF knowledge base.

Requirements

- PDF Ingestion:

  - Load cricket_players.pdf using PyPDFLoader.

  - Split using CharacterTextSplitter (chunk_size=100, chunk_overlap=10).

- Vector Store (choose one):

  - Chroma or FAISS with OllamaEmbeddings (granite-embedding:latest).

  - Store under collection/index: cricket_players.

- LLM Integration (choose one):

  - HuggingFaceEndpoint (e.g., Menlo/Jan-nano-128k) or

  - Local Ollama model (e.g., llama3, mistral).

- Chat Logic:

  - Use RetrievalQA with prompt template.

  - Track conversation with InMemoryChatMessageHistory.

- LangSmith:

  - Enable tracing with LangSmith.

  - Use env vars for API key and project name.

- UI:

  - Gradio interface with:

    - Text input, response area

    - Submit and Clear History buttons

    - Greeting: "Hello, I am CricketBot, your cricket expert. How can I help you today?"

Deliverable

Submit a single cricket_chatbot.py that:

- Loads and splits the PDF

- Initializes Chroma or FAISS

- Connects to Ollama or Hugging Face model

- Implements LangSmith tracing

- Runs Gradio UI with history support