Mystro AI - Tasks

Notes:

- Solve only 4 tasks out of 7
- Take your time to review our notebook first , then use the search to complete what you need only
- Give each task a chance even if you think there is something new in it use your knowledge and search
- Each task should be a separated github repo
- Even if you did not complete the tasks upload the code you have written even if it is one line because i need to see it
- Follow each task requirements (no more no less)
- If you finished you 4 tasks , feel free to try to solve the other 3
- If you finished all 7 and still have time , continue uploading your current tasks & previous sessions tasks as a separated projects on your github

Task 1: Build a Financial Analyst System Using LangChain and Ollama

Requirements:

- Use LangChain and Ollama to create a financial analyst system.
- The system should accept user queries related to finance (e.g., stock analysis, market trends, company reports).
- It should be able to analyze, process, and provide useful insights or answers from financial data.

Task 2: Image Classification Using Transfer Learning and a Built-in Dataset

Requirements:

- Use any transfer learning model (e.g., VGG16, ResNet, or MobileNet) to build a neural network for image classification.
- Select a built-in dataset for image classification (e.g., CIFAR-10, MNIST, or Fashion MNIST).
- Preprocess the dataset and ensure it’s ready for input into the model.
- Fine-tune the pre-trained model by replacing the final layers to suit the classification task.
- Train and evaluate the model on the dataset, reporting accuracy and loss.

Task 3:Convert Sentences to Embeddings Using Ollama and Implement Similarity Search with a Vector Database

Requirements:

- Use Ollama to convert three sample sentences into embeddings.
- Store the embeddings in a vector database (e.g., FAISS or Pinecone).
- Implement a similarity search function to compare the embeddings and return the most similar sentence for a given query.
- Test the system by inputting a new sentence and retrieving the most semantically similar one from the stored sentences.

Task 4 : Build a Sentiment Analysis System Using LangChain and Ollama

Requirements:

- Use LangChain integrated with Ollama to build a sentiment analysis system.
- The system should classify text inputs (e.g., product reviews, social media posts) into positive, negative, or neutral sentiment.
- Use a pre-trained model (ollama) to handle text embedding and sentiment classification.

Task 5 : Build a Simple Chat Application Using Ollama and LangChain

Requirements:

- Use Ollama for natural language processing and LangChain for building a conversational interface.
- Ensure the chat can answer general questions and provide coherent responses to user queries.
- Test the chat system with various types of questions and responses to ensure accuracy and continuity.
- Build the same system again using llamaindex

Task 6 : Big Project

Requirements:

integrate the last 5 projects in one main class , each project in a function inside this class and add a main function which starts asking the user which app he wants to run if the user press the app numbers (like the game we did before)

Task 7 Text Summarization using LangChain and Ollama

Requirements:

- The goal is to use LangChain and the Ollama to build a python script that takes a block of text and summarizes it into a concise version.
- Build the system again using llamaindex