Chaining in LangChain: Step-by-Step Guide

1. Initialization and Setup

Logging Setup: The script begins by setting up logging to ensure that all operations are logged.

API Key and LLM Initialization

The API key is provided to authenticate with the OpenAI model, and the ChatOpenAI class is instantiated with this key.

Memory Initialization

The script initializes ConversationSummaryMemory to manage the conversation history.

2. Chaining System and Human Messages

Define system and human message templates.

Combining Templates

Combine system and human message templates into a ChatPromptTemplate.

3. Prompt Formatting and Message Conversion

Replace placeholders with specific values using .format_prompt().

Converting to Messages

Convert the formatted prompt into a list of messages.

4. Invoking the LLM

Use the .invoke() method to send the structured prompt to the LLM.

5. Processing and Saving the Response

Extract the LLM's response content for further use.

Saving to Memory

Save the prompt and response to memory.

6. Further Chaining: Generating Tests

Chain the operation by generating a test for the code using the LLM.

Invoking the LLM Again

Send the new prompt to the LLM and save the response.

7. Output and Summary

Output the generated code and the test.

Retrieving Summary

Retrieve and display the conversation summary from memory.