🏠 Modules More Memory

Memory in the Multi-Input Chain

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Most memory objects assume a single input. In this notebook, we go over how to add memory to a chain that has multiple inputs. We will add memory to a question/answering chain. This chain takes as inputs both related documents and a user question.

```
from langchain.text_splitter import CharacterTextSplitter
from langchain_community.vectorstores import Chroma
from langchain_openai import OpenAIEmbeddings
```

```
with open("../../state_of_the_union.txt") as f:
    state_of_the_union = f.read()
text_splitter = CharacterTextSplitter(chunk_size=1000, chunk_overlap=0)
texts =
text_splitter.split_text(state_of_the_union)

embeddings = OpenAIEmbeddings()
```

```
docsearch = Chroma.from_texts(
    texts, embeddings, metadatas=[{"source": i} for i in range(len(texts))]
)
```

```
Running Chroma using direct local API.
Using DuckDB in-memory for database. Data will be transient.
```

```
query = "What did the president say about Justice Breyer"
docs = docsearch.similarity_search(query)
```

```
from langchain.chains.question_answering import load_qa_chain
from langchain.memory import ConversationBufferMemory
from langchain.prompts import PromptTemplate
from langchain_openai import OpenAI
```

```
template = """You are a chatbot having a
conversation with a human.

Given the following extracted parts of a long
document and a question, create a final answer.

{context}

{chat_history}
Human: {human_input}
Chatbot:"""

prompt = PromptTemplate(
    input_variables=["chat_history",
"human_input", "context"], template=template
)
memory =
ConversationBufferMemory(memory_key="chat_histo
input_key="human_input")
chain = load_qa_chain(
    OpenAI(temperature=0), chain_type="stuff",
memory=memory, prompt=prompt
)
```

```
query = "What did the president say about
Justice Breyer"
chain({"input_documents": docs,
"human_input": query},
return_only_outputs=True)
```

```
{'output_text': ' Tonight, I’d like to honor
someone who has dedicated his life to serve
this country: Justice Stephen Breyer—an Army
veteran, Constitutional scholar, and retiring
Justice of the United States Supreme Court.
Justice Breyer, thank you for your service.'}
```

```
print(chain.memory.buffer)
```

```


Human: What did the president say about
Justice Breyer
AI:  Tonight, I’d like to honor someone who
has dedicated his life to serve this country:
Justice Stephen Breyer—an Army veteran,
Constitutional scholar, and retiring Justice
of the United States Supreme Court. Justice
Breyer, thank you for your service.
```