

LangChain 101

Austin LangChain

Austin LangChain About

- Local Austin LangChain User Group
 - Twitter - [@AustinLangChain](https://twitter.com/AustinLangChain)
 - Github - https://github.com/colinmcnamara/austin_langchain
 - Meetup - <https://www.meetup.com/austin-lanchain-ai-group/>
 - Discord - Todo
 - Monthly in person meetings & workshops
 - Low stress, learning and sharing
 - Connect with other early adopters
 - Learn, Share, Grow
-
- Be cool to each other, no gross behavior

About Me - Colin McNamara

- **Home:** Austin, East Side
- **Work:** Managing Partner, Engineering & Finance @ Always Cool Brands
- **Background:** Hyperscale ISP / Cloud Builder / Consulting / Leadership / USMC
- **FOSS:** Linux, OpenStack, OpenDaylight
- **Using LangChain:** business operations, technical growth
- **Goals:** grow skills, grow community
- **Vision:** Austin as an AI Tech Hub vs Outpost



Course Structure

- Conceptual Overview
- Labs, run in browser on Google Colab (option to run ipynb locally if advanced)
- Conceptual Reinforcement
- More labs
- ... etc

What is Langchain?

- Open-Source developer framework for building LLM applications
- **Python** and Typescript packages
- Focused on composition and modularity (add lego blocks picture)
 - Modular components & Implementations
 - Common use cases that combine components together

LangChain Key Concepts

- Prompts
 - Prompt Templates
 - Output Parsers

LangChain Key Concepts

- Models
 - LLM Integrations: 20+
 - Chat Models
 - Text Embeddings Models: 10+

LangChain Key Concepts

- Indexes
 - Document Loaders: 50+
 - Text Splitters: 10+
 - Vector Stores: 10+
 - Retrievers: 5+

LangChain Key Concepts

- Chains
 - Building blocks for other chains
 - Application specific chains: 20+

LangChain Key Concepts

- Agents
 - Independent Entity
 - Has access to tools

LangChain Key Concepts

- Tools
 - Set of functions available to agents
 - Internet Search
 - Multiple Vector Stores
 - 50+ more

Lab!!! - get your OpenAI key

1. Go to <https://openai.com/>
2. Click on Menu > Developers > Overview
3. Click on your Profile image (top right) > View API keys
4. Click on + Create new secret key
5. Enter an optional Name for the API key for future reference

LAB101.1!!! - Accessing Chat Model via API

- Required: OpenAI API Key: (keep this a secret)
- Required: Google account
- Use free Colab instance: <https://colab.research.google.com>
- Repo: https://github.com/colinmcnamara/austin_langchain/
- Notebook:
https://github.com/colinmcnamara/austin_langchain/blob/main/labs/LangChain_101/streamlit_document_search.ipynb

Open in Colab

The screenshot shows the GitHub interface for the repository 'colinmcnamara / austin_langchain'. The 'Code' tab is selected. In the left sidebar, the file 'Streamlit-Streaming.ipynb' is highlighted under the 'LangChain_101' directory. A large white arrow points from this file to a blue 'Open in Colab' button. Below the button, a callout box with the text 'Click Here' is shown. The main content area displays the file's commit history and the code for 'In [1]:', which includes pip installation commands and Python code for a streaming application.

colinmcnamara / austin_langchain

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

Files

main

Go to file

labs

LangChain_101

Austin LangChain - LangChai...

Streamlit-Streaming.ipynb

streamlit_document_search

LangChain_103

.DS_Store

logos

austin_langchain / labs / LangChain_101 / Streamlit-Streaming.ipynb

colinmcnamara Updated streamlit streaming lab in 101

Preview Code Blame 1 lines (1 loc) · 4.05 KB

Open in Colab

In [1]:

```
!pip install -q langchain openai streamlit
```

```
%writefile streaming_app.py
from langchain.callbacks.base import BaseCallbackHandler
from langchain.chat_models import ChatOpenAI
from langchain.schema import ChatMessage
import streamlit as st
```

LAB101.2!!! - Document Search

- Required: OpenAI API Key: (keep this a secret)
- Required: Google account
- Use free Colab instance: <https://colab.research.google.com>
- Repo: https://github.com/colinmcnamara/austin_langchain/
- Notebook:
https://github.com/colinmcnamara/austin_langchain/blob/main/labs/LangChain_101/streamlit_document_search.ipynb

Files

main

Go to file

labs

- streamlit_document_search.ip...
- logos
- meetings
- .gitignore
- README.md

austin_langchain / labs / streamlit_document_search.ipynb

colinmcnamara Demo for 101, with a link to Colab 9e5d3ee · now History

Preview Code Blame 297 lines (297 loc) · 14.9 KB Raw Copy Download Edit

Open in Colab

```
In [1]: !pip install -q langchain streamlit openai pypdf sentence_transformers docarray
```

	1.7/1.7 MB	10.3 MB/s	eta 0:00:00
	8.1/8.1 MB	26.7 MB/s	eta 0:00:00
	76.5/76.5 kB	2.5 MB/s	eta 0:00:00
	272.6/272.6 kB	14.7 MB/s	eta 0:00:00
	86.0/86.0 kB	8.6 MB/s	eta 0:00:00
Preparing metadata (setup.py) ... done			
	264.3/264.3 kB	14.8 MB/s	eta 0:00:00
	164.8/164.8 kB	17.6 MB/s	eta 0:00:00

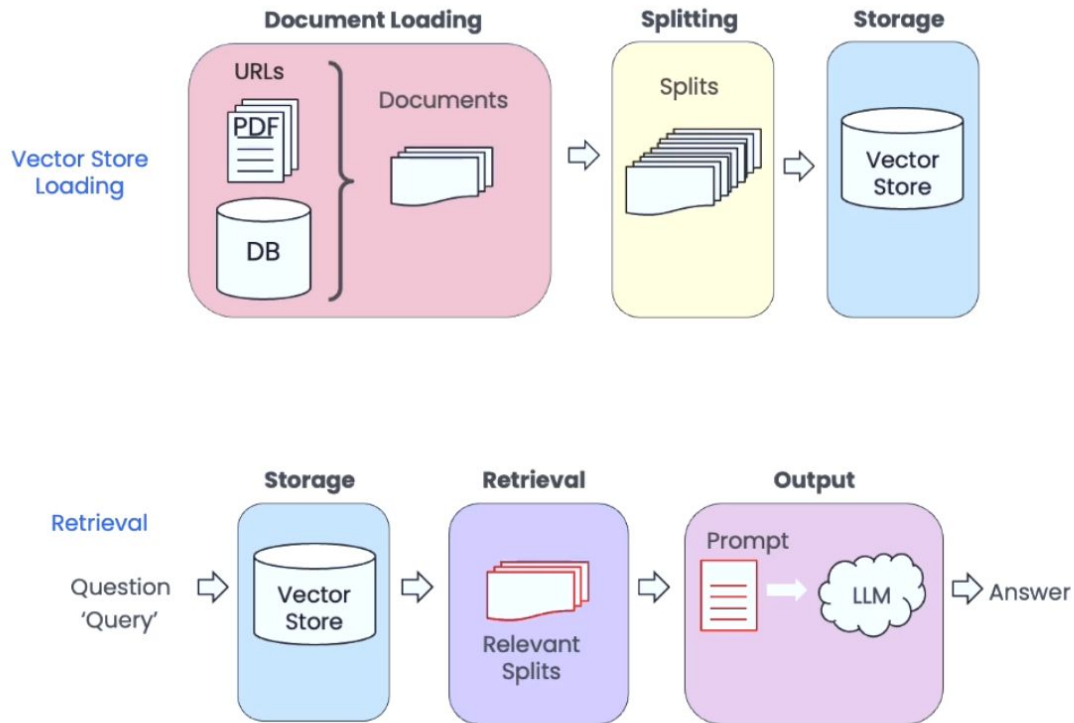


Thank you - Please Join

- Local Austin LangChain User Group
 - Twitter - [@AustinLangChain](https://twitter.com/AustinLangChain)
 - Github - https://github.com/colinmcnamara/austin_langchain
 - Meetup - <https://www.meetup.com/austin-lanchain-ai-group/>
 - Discord - Todo
- Monthly in person meetings & workshops
- Low stress, learning and sharing
- Connect with other early adopters
- Learn, Share, Grow

Supporting Slides

Retrieval Augment Generation



LAB103 - What you will need

- Required: OpenAI API Key: (keep this a secret)
- Required: Google account
- Free Colab instance: <https://colab.research.google.com>
- Repo: https://github.com/colinmcnamara/austin_langchain/
- Notebook:
https://github.com/colinmcnamara/austin_langchain/blob/main/labs/LangChain_102/QA_Using_Retriever.ipynb