LangChain 101

Austin LangChain Users Group

Austin LangChain About

- Local Austin LangChain User Group
  - Twitter - @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

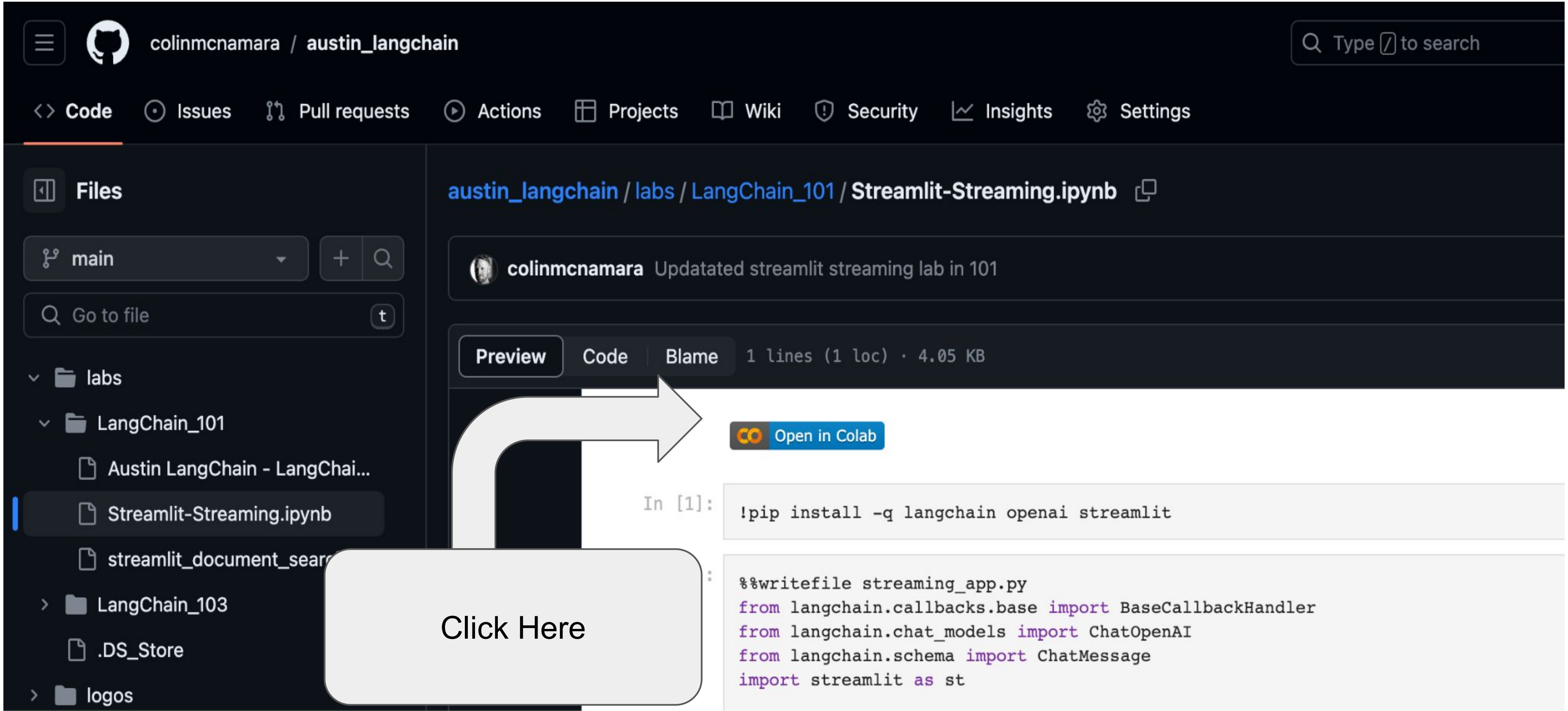
Lab!!! - get your OpenAI key

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
6. Save this key using a password manager

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 Notebook in Colab


colinmcnamara / austin_langchain
Type / to search
Code
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Austin LangChain - LangChai...
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colinmcnamara Updatated streamlit streaming lab in 101
Preview
Code
Blame
1 lines (1 loc) · 4.05 KB
Open in Colab
In [1]:

Click Here

```
!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

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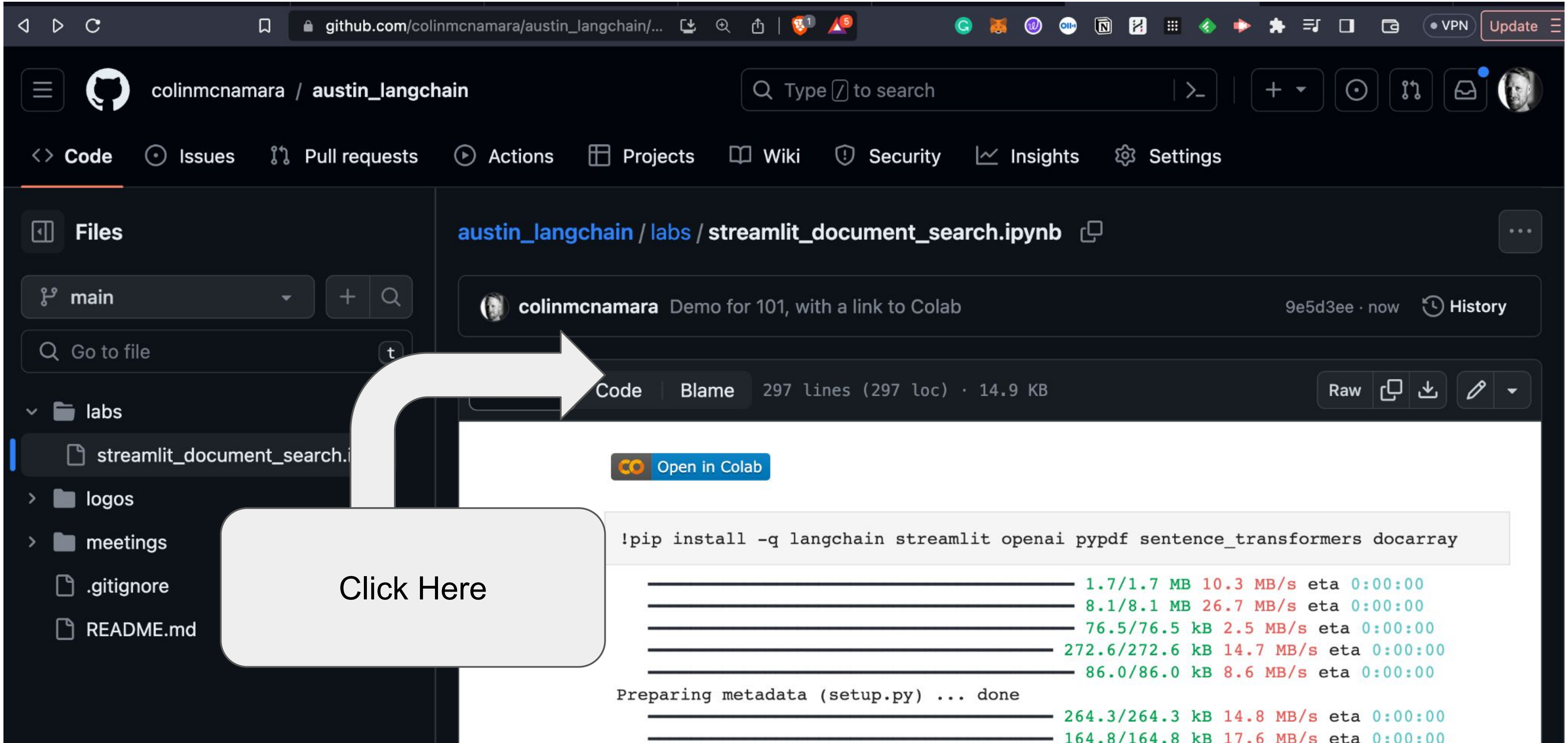
Open Notebook in Colab



github.com/colinmcnamara/austin_langchain/...
colinmcnamara / austin_langchain
Type / to search
Code
Issues
Pull requests
Actions
Projects
Wiki
Security
Insights
Settings
Files
main
Go to file
labs
streamlit_document_search.i
logos
meetings
.gitignore
README.md
austin_langchain / labs / streamlit_document_search.ipynb
colinmcnamara Demo for 101, with a link to Colab
9e5d3ee · now
History
Code
Blame
297 lines (297 loc) · 14.9 KB
Raw
Open in Colab

```
!pip install -q langchain streamlit openai pypdf sentence_transformers docarray
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```

Click Here

Thank you - Please Join

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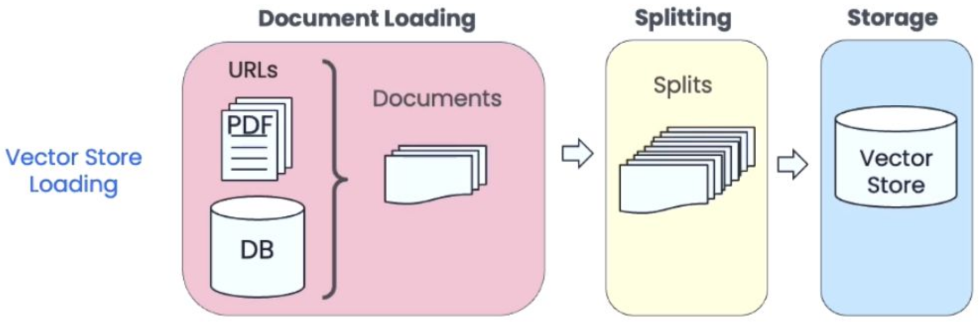
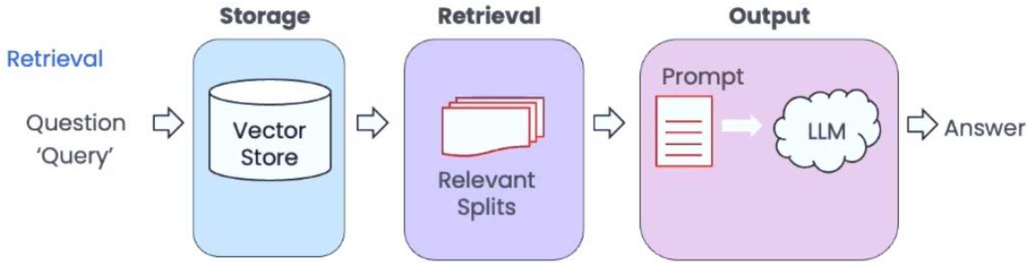
Supporting Slides

Retrieval Augment Generation





LAB103 - What you will need

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