

# 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](https://github.com/colinmcnamara/austin_langchain)
    - Meetup - <https://www.meetup.com/austin-lanchain-ai-group/>
  - 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
- **Goals:** grow skills, grow community



# 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

# Key Concepts

- Prompts
  - Prompt Templates
  - Output Parsers
- Models
  - LLM Integrations: 20+
  - Chat Models
  - Text Embeddings Models: 10+
- Indexes
  - Document Loaders: 50+
  - Text Splitters: 10+
  - Vector Stores: 10+
  - Retrievers: 5+
- Chains
  - Building blocks for other chains
  - Application specific chains: 20+
- Agents
  - Independent Entity
  - Has access to tools
- 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

# LAB!!! - What you will need

- 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/](https://github.com/colinmcnamara/austin_langchain/)
- Notebook:  
[https://github.com/colinmcnamara/austin\\_langchain/blob/main/labs/streamlit\\_document\\_search.ipynb](https://github.com/colinmcnamara/austin_langchain/blob/main/labs/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
```

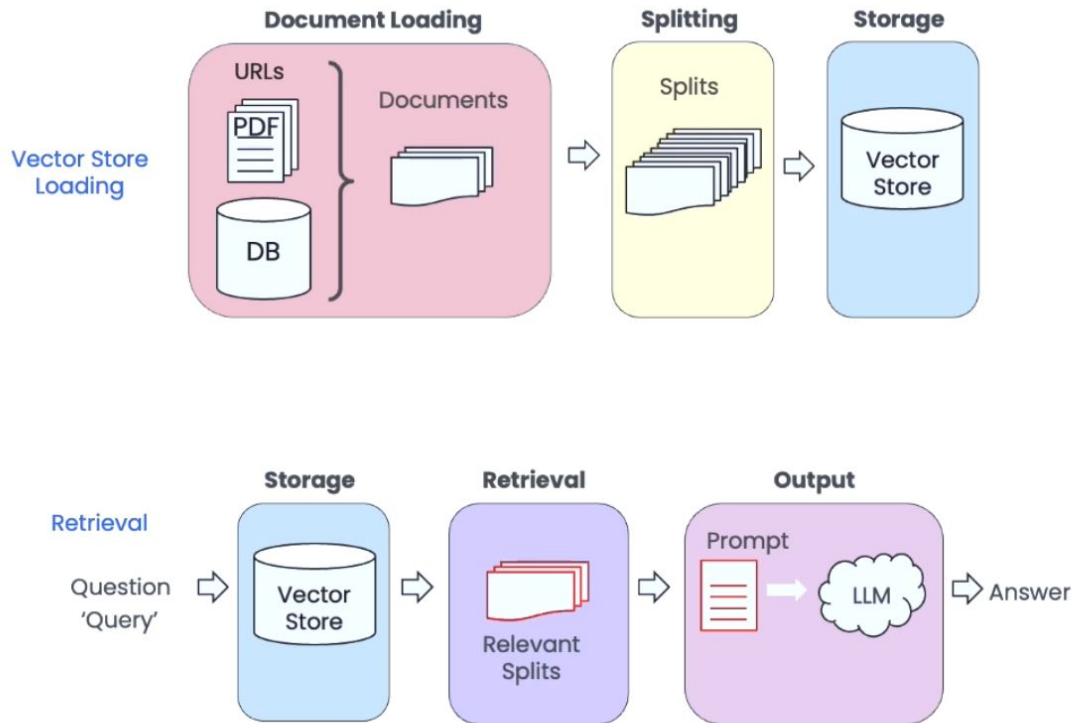
	1.7/1.7 MB	10.3 MB/s	eta 0:00:00
	8.1/8.1 MB	26.7 MB/s	eta 0:00:00
	76.5/76.5 kB	2.5 MB/s	eta 0:00:00
	272.6/272.6 kB	14.7 MB/s	eta 0:00:00
	86.0/86.0 kB	8.6 MB/s	eta 0:00:00
Preparing metadata (setup.py) ... done			
	264.3/264.3 kB	14.8 MB/s	eta 0:00:00
	164.8/164.8 kB	17.6 MB/s	eta 0:00:00



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- Notebook:  
[https://github.com/colinmcnamara/austin\\_langchain/blob/main/labs/LangChain\\_102/QA\\_Using\\_Retriever.ipynb](https://github.com/colinmcnamara/austin_langchain/blob/main/labs/LangChain_102/QA_Using_Retriever.ipynb)

# Retrieval Augment Generation



# Thank you - Austin LangChain

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