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#5

ai.py

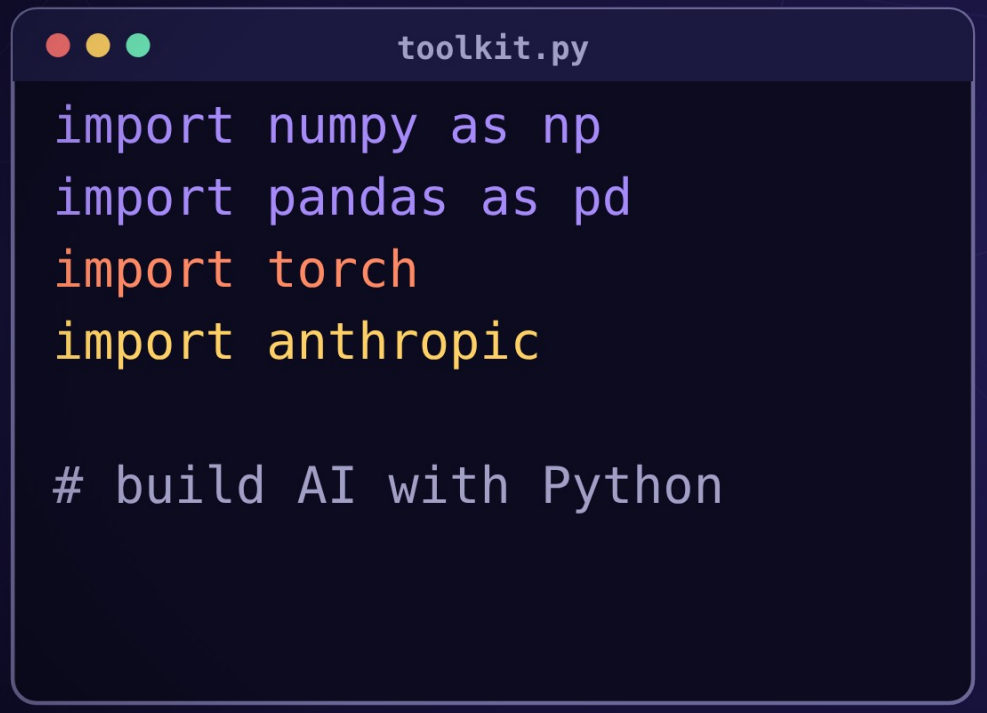
```
import numpy as np
import pandas as pd
import torch
import tensorflow
import anthropic
```

PYTHON

AI

Toolkit

AI EXPLAINED · A FREE SERIES FOR STUDENTS AND DEVELOPERS



A MYWEBUNIVERSITY SERIES

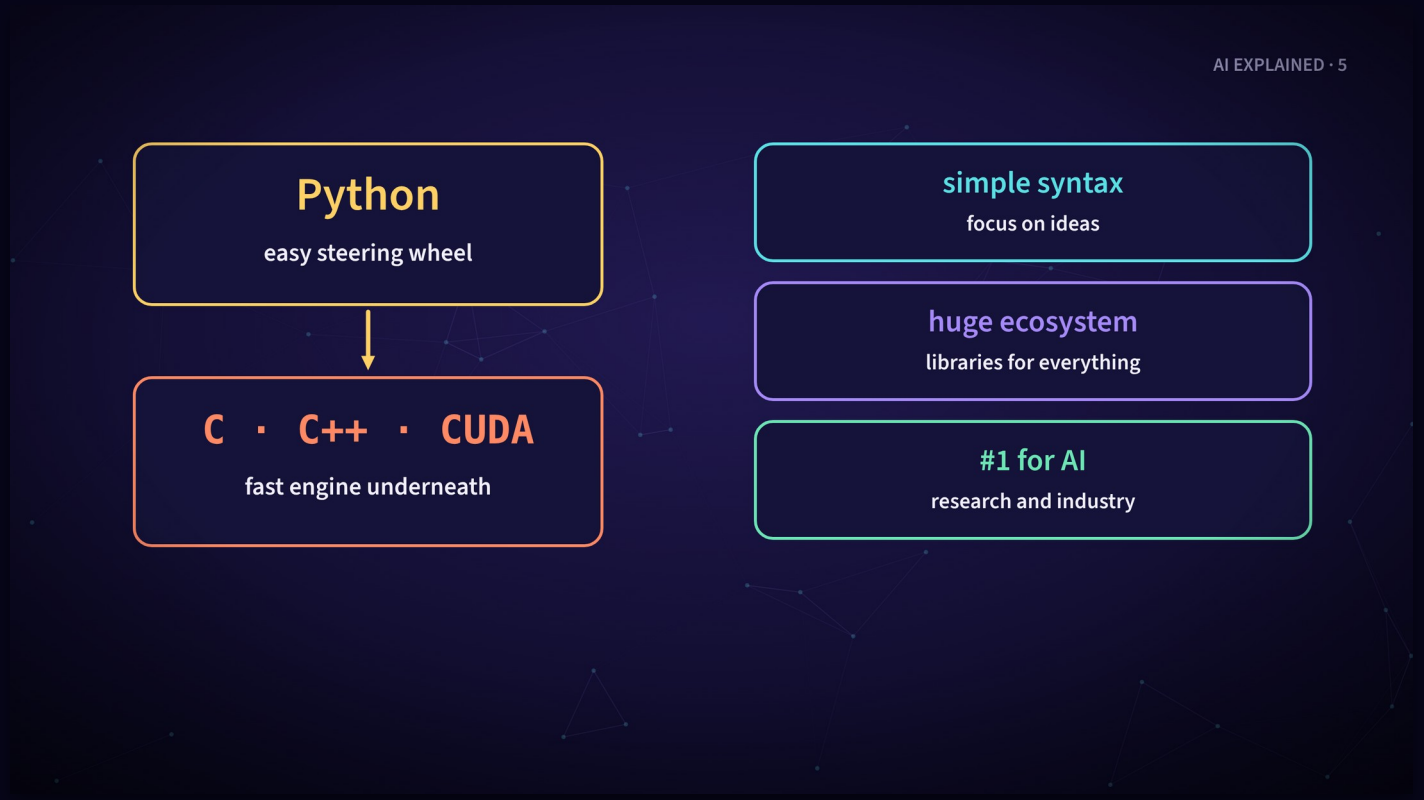
AI EXPLAINED

EPISODE 5

The Python AI Toolkit

NumPy · PyTorch · LLM APIs

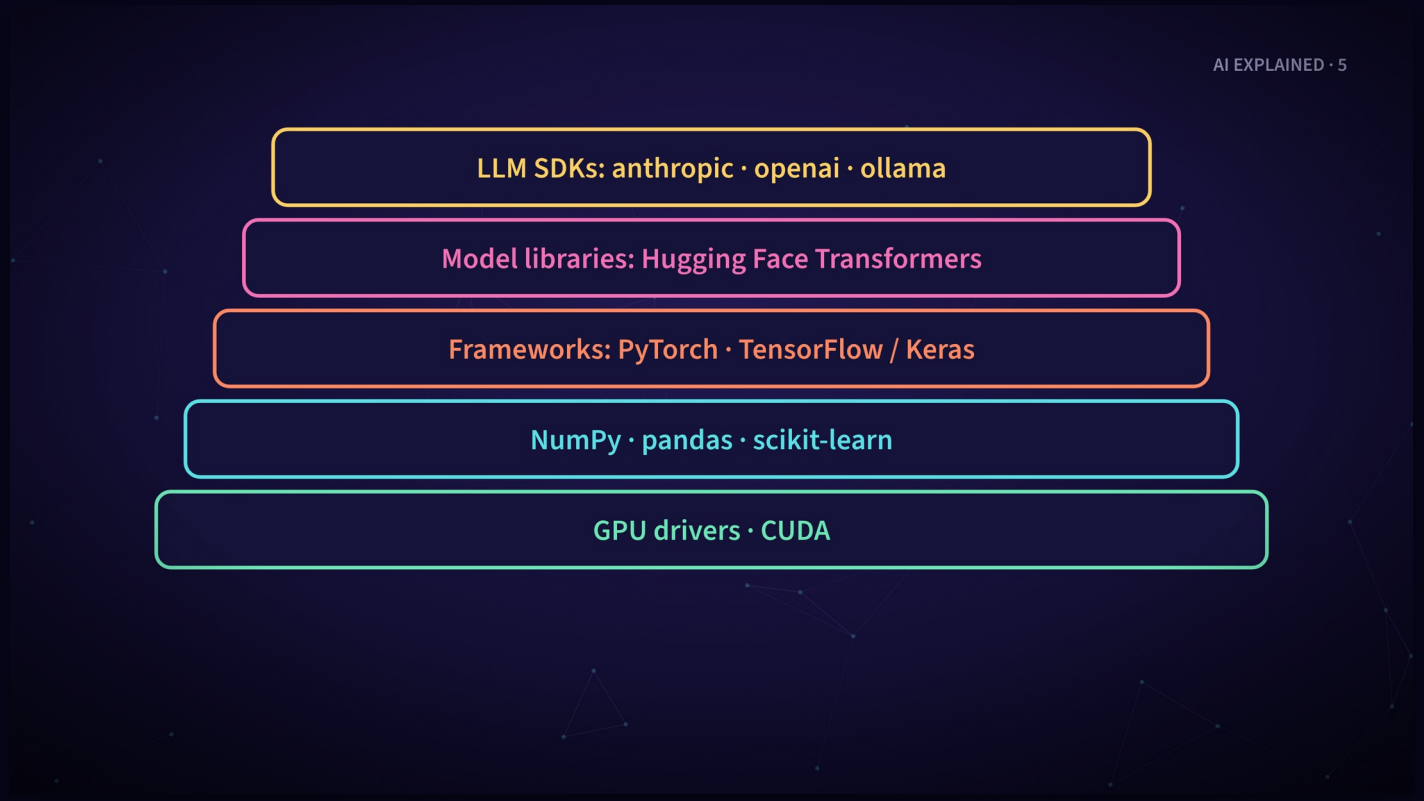
Why Python Rules AI



- Simple syntax, huge ecosystem
- Fast C/C++/CUDA underneath

01

The AI Software Stack



- GPU drivers · CUDA
- NumPy · TensorFlow · PyTorch
- Transformers · LLM SDKs

02

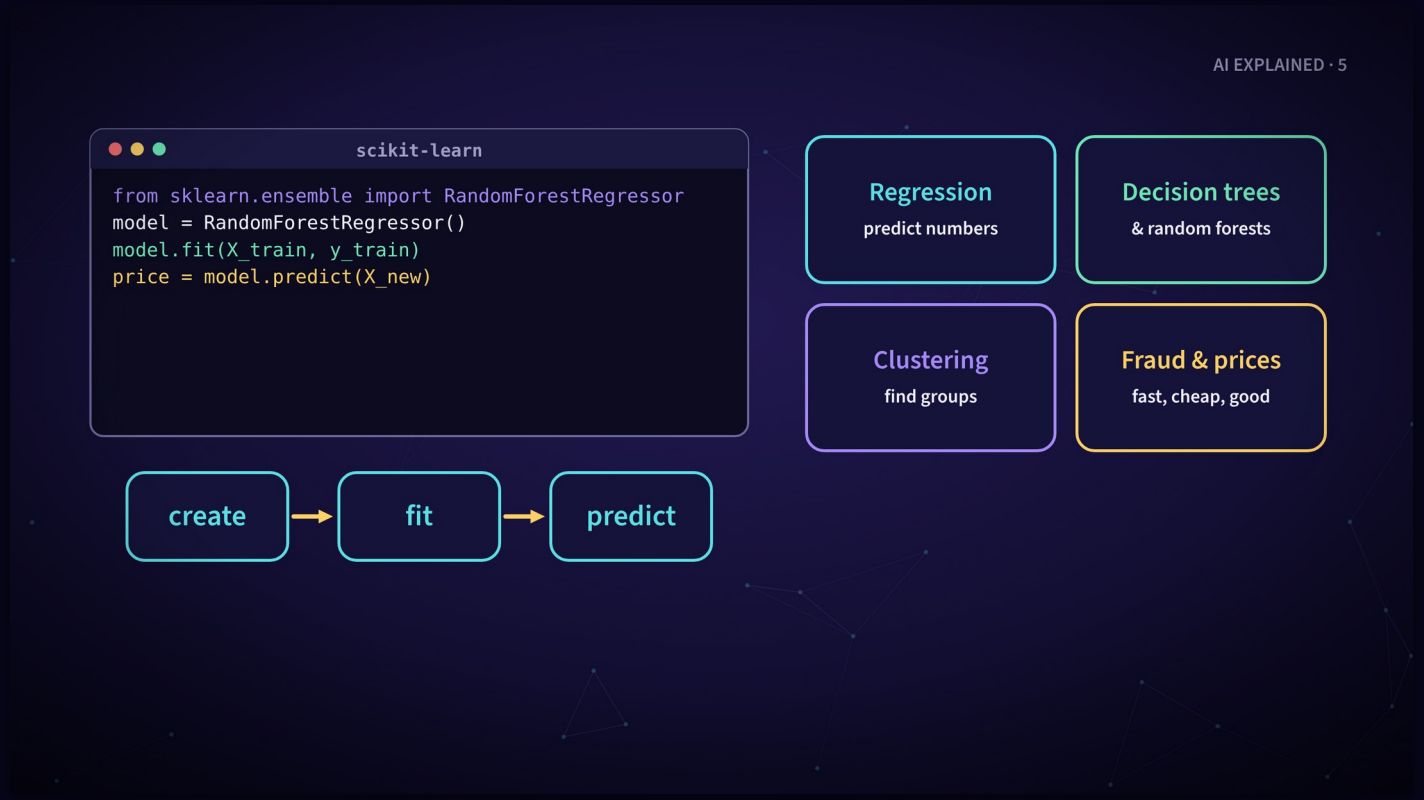
NumPy and pandas: Data First



- NumPy: fast arrays
- pandas: clean tables · Matplotlib: charts
- Clean data first

03

scikit-learn: Classic Machine Learning



- Regression, trees, forests, clustering
- fit() → predict()
- Fast and cheap for many problems

04

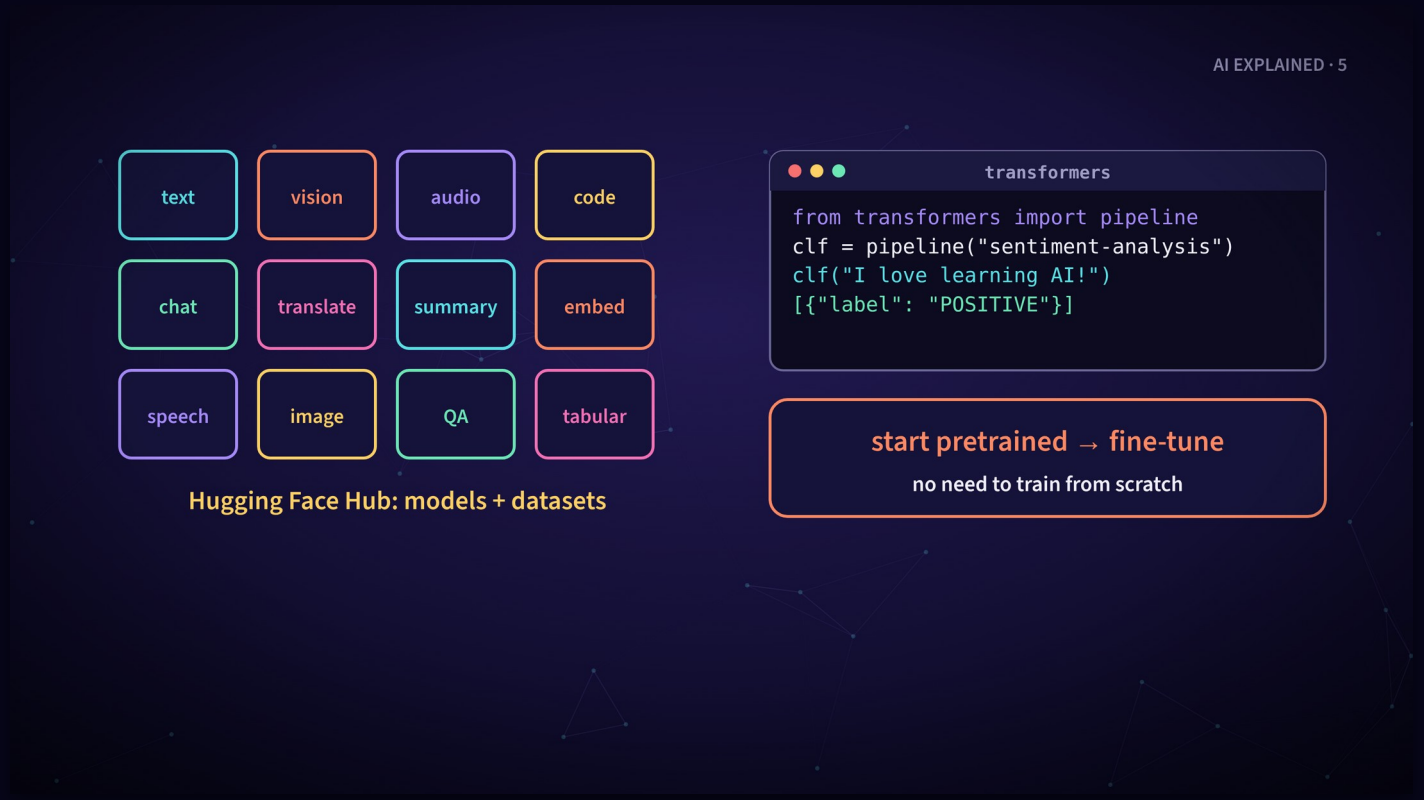
TensorFlow, Keras and PyTorch



- TensorFlow (2015) + Keras
- PyTorch (2016): research favorite
- Tensors, GPUs, automatic gradients

05

Hugging Face: The Model Library



- Hugging Face Hub: models + datasets
- Transformers library
- Fine-tune pretrained models

06

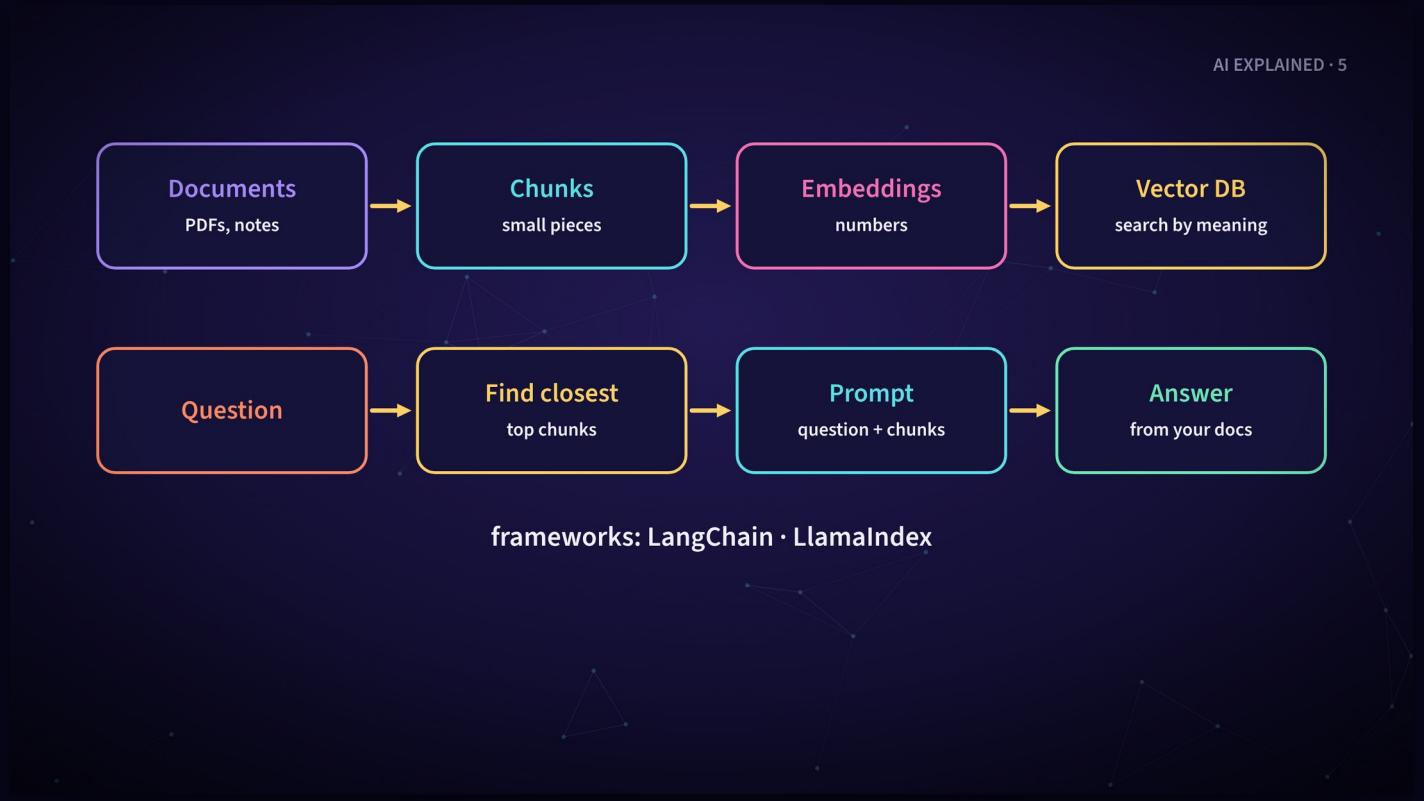
Calling an LLM From Python



- pip install anthropic
- client.messages.create(model, max_tokens, messages)
- OpenAI, Google SDKs · ollama library

07

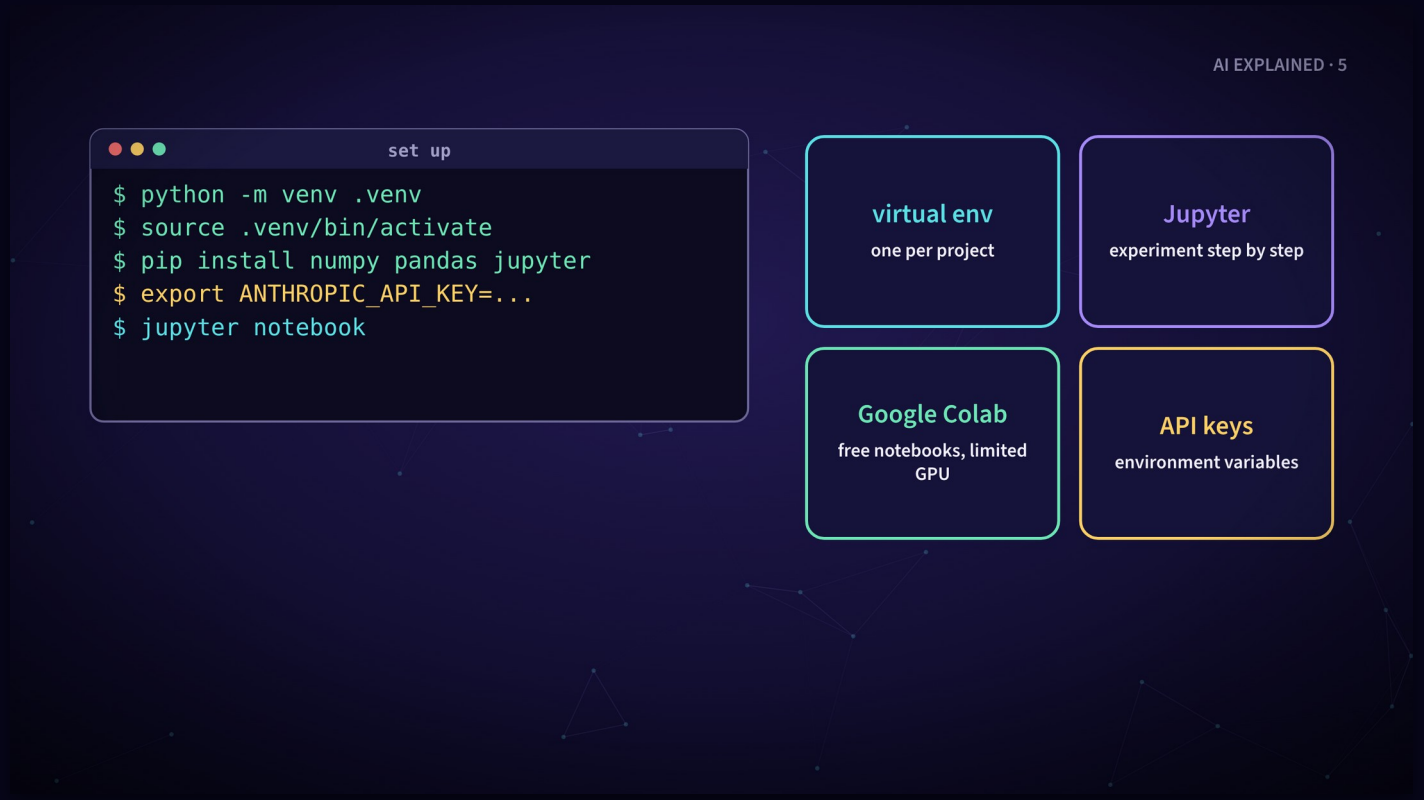
Frameworks, RAG and Vector Databases



- RAG: answer from your documents
- Embeddings in a vector database
- LangChain · LlamaIndex

08

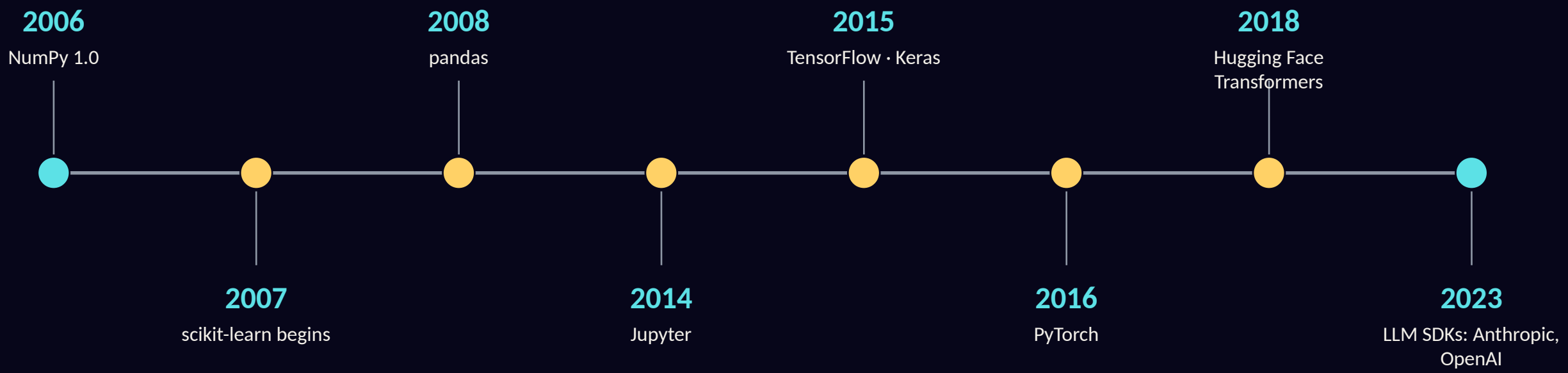
Set Up Your AI Workspace



- Virtual environments · Jupyter
- Google Colab free GPU time
- API keys in environment variables

09

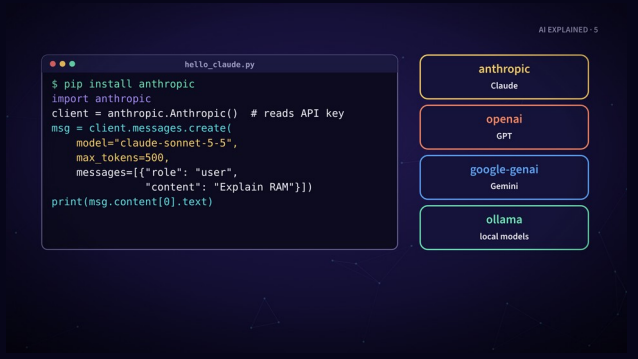
Timeline: 2006 to 2023



Sources and Further Reading

1. numpy.org · pandas.pydata.org · matplotlib.org
2. scikit-learn.org — user guide
3. tensorflow.org · keras.io · pytorch.org
4. huggingface.co/docs/transformers
5. Anthropic Python SDK — github.com/anthropics/anthropic-sdk-python; platform.claude.com/docs





Thank you for watching

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