Month 6: Generative AI & RAG

Overview & Schedule (Weeks 21-24)

Week 21: LLM Fundamentals

Day	Topic	Theory (Brief)	Practice (Brief)	Time
Day 1	LLM Architecture	Watch: Andrej Karpathy's Intro to Large Language Models (1 hour). (You can sp...	Play: Experiment with OpenAI Playground (or HuggingChat). Try changing temper...	2h
Day 2	Prompt Engineering	Course: DeepLearning.AI: Prompt Engineering for Developers (Watch first 3 cha...	Code: Write a Python script using `openai` lib to perform 'Few-Shot' classifi...	2h
Day 3	API Integration	Read: OpenAI API Quickstart.	Code: Build a CLI Chatbot. Allow the user to type, send to GPT-3.5/4, and pri...	2h

Week 22: RAG (Retrieval Augmented Generation)

Day	Topic	Theory (Brief)	Practice (Brief)	Time
Day 1	RAG Concepts	Watch: IBM Technology's What is RAG? (10 min). Concept: Retrieving relevant c...	Conceptual: Draw the RAG pipeline: User Query -> Embed -> Search Vector DB ->...	2h
Day 2	Vector Databases	Watch: Vector Databases Explained (15 min). Concept: Cosine Similarity.	Python: Use `chromadb` or `faiss`. Store 5 sentences. Query for the most simi...	2h
Day 3	Building a RAG Pipeline	Watch: LangChain's RAG from Scratch (20 min).	Code: Create a script that reads a text file (e.g., your resume), chunks it, ...	2h

Week 23: Frameworks (LangChain)

Day	Topic	Theory (Brief)	Practice (Brief)	Time
Day 1	LangChain/LlamaIndex	Watch: Rabbitmetrics' LangChain Explained in 13 Minutes. Concept: Chains and ...	Code: Build a 'SequentialChain' that takes a topic, generates a title, and th...	2h
Day 2	Evaluation	Read: RAGAS Metrics. Concept: Faithfulness and Answer Relevance.	Manual Eval: Ask your RAG 10 control questions. Manually rate the answers 1-5.	2h
Day 3	GenAI Project	Setup: Streamlit + LangChain.	Project: Build 'ChatWithPDF'. User uploads PDF, system answers questions. (Se...	3h

Week 24: Month 6 Review

Day	Topic	Theory (Brief)	Practice (Brief)	Time
Day 1	Review	Consolidate GenAI concepts.	Polish your AI Assistant.	2h