14-Day Roadmap: Full-Featured RAG System with LangGraph + CRAG  
Day 1: RAG + LangGraph Setup  
Understand RAG, install dependencies, set OpenAI key. Resources: FreeCodeCamp RAG video, LangGraph  
docs.  
Day 2: LangGraph Basics + State Machine  
Build a dummy graph with 2-3 states and transitions. Understand State, Node, and Flow.  
Day 3: Document Loading + Indexing  
Ingest and index PDFs using PyMuPDF or PDFPlumber, chunk with RecursiveCharacterTextSplitter, store  
with FAISS.  
Day 4: Retrieval Node  
Implement the retrieval logic using langchain retriever. Return top-k relevant documents.  
Day 5: Evaluation Node (CRAG logic)  
Use LLM to score retrieved docs: Correct, Ambiguous, Incorrect. Route accordingly.  
Day 6: Answer Generation + Decompose/Recompose  
Generate final answers from refined context. Decompose facts then recompose for answer.  
Day 7: Connect All in LangGraph  
Connect all states in LangGraph, test with basic queries. Save as `basic\_crag\_graph.py`.  
Day 8: Multi-Input Upload (PDFs, URLs, Images, Audio)  
Enable PDF, URL, image (OCR), audio (Whisper) uploads. Normalize to plain text and embed.  
Day 9: Memory Integration  
Add session-level memory using LangChain's ConversationBufferMemory to retain chat context and

14-Day Roadmap: Full-Featured RAG System with LangGraph + CRAG  
highlights.  
Day 10: Summarization + Highlighting  
Let users summarize and highlight documents, saving them to memory for future reference or citations.  
Day 11: Document Comparison Tool  
Compare two or more docs using side-by-side summary and LLM-driven comparison.  
Day 12: Web UI with Streamlit or Gradio  
Build a Streamlit/Gradio UI with file upload, chat interface, highlighting, and doc comparison.  
Day 13: Evaluation + Fine-tuning  
Test ambiguous queries, analyze CRAG vs RAG output, integrate evaluators like TruLens.  
Day 14: Polish + Deploy  
Deploy the app to HuggingFace Spaces, Render, or Railway. Create README, push to GitHub, and polish  
UX.