

Deep Research AI Agentic System

Project Overview:

This system is designed to perform deep research using a dual-agent architecture implemented with LangGraph and LangChain. It uses Tavily for web crawling and Groq (Llama 3) for drafting the final summary.

Architecture:

- Research Agent: Collects data via Tavily.
- Drafting Agent: Uses Groq's Llama 3 to draft a concise, factual response.
- Pipeline: Managed via LangChain + LangGraph-inspired flow.

Technical Stack:

- Research Agent: Tavily (free)
- Drafting Agent: Groq (free, Llama 3)
- Agent Framework: LangChain + LangGraph
- Environment Management: Python + dotenv

Steps to Run:

1. Clone repo.
2. Fill .env with your Tavily & Groq API keys.
3. Install dependencies: `pip install -r requirements.txt`
4. Run: `python main.py`.

Why No OpenAI/Anthropic?

- Groq offers free inference for Llama 3.
- Tavily offers free web crawling (up to decent limits).

Conclusion:

This system demonstrates how open LLMs (Llama 3) combined with real-time research tools (Tavily) can create robust research agents.

This open-stack approach keeps the system cost-free, making it accessible to all developers.