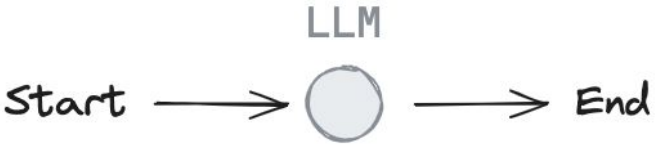
LangChain Academy

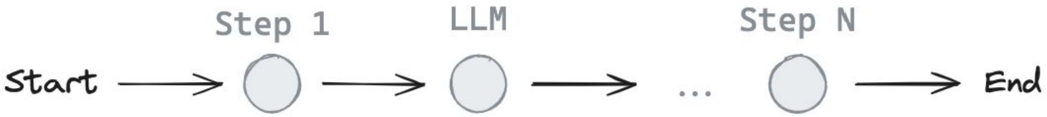
Introduction to LangGraph

A solitary language model is fairly limited…



… e.g., access to tools, external context, multi-step workflows.

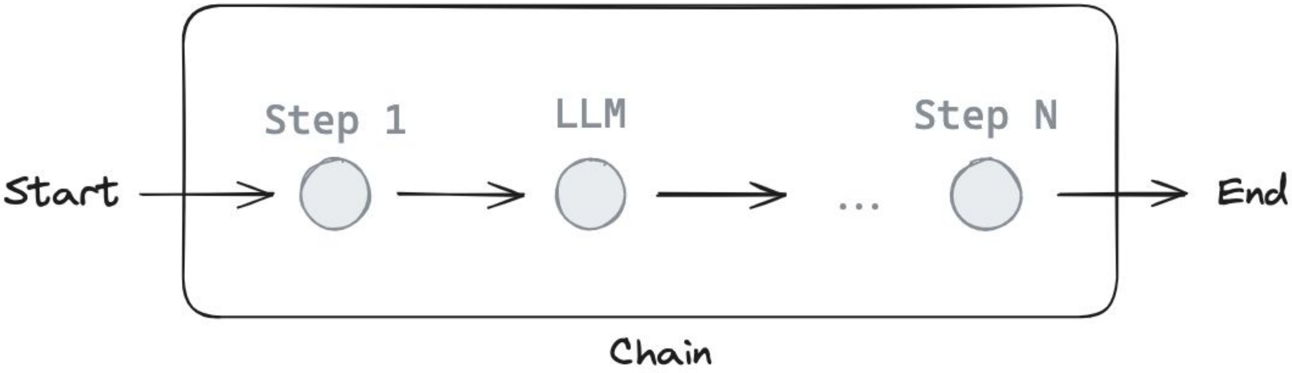
So, many LLM applications use a control flow …



… with steps pre / post-LLM call (tool calls, retrieval, etc).

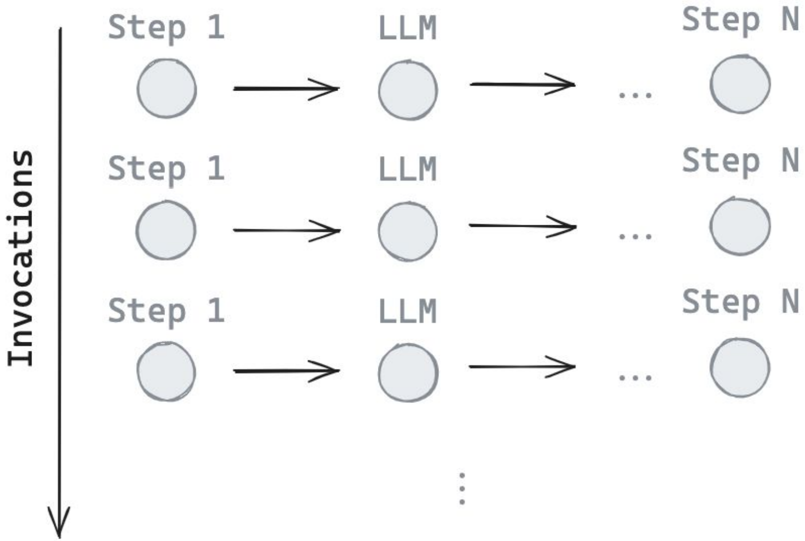
Reference:
https://en.wikipedia.org/wiki/Control_flow
https://github.com/langchain-ai/rag-from-scratch

This control flow forms a “chain”



Reference:
https://en.wikipedia.org/wiki/Control_flow
https://blog.langchain.dev/what-is-an-agent/

Chains are reliable! Same control flow every time.



Reference:
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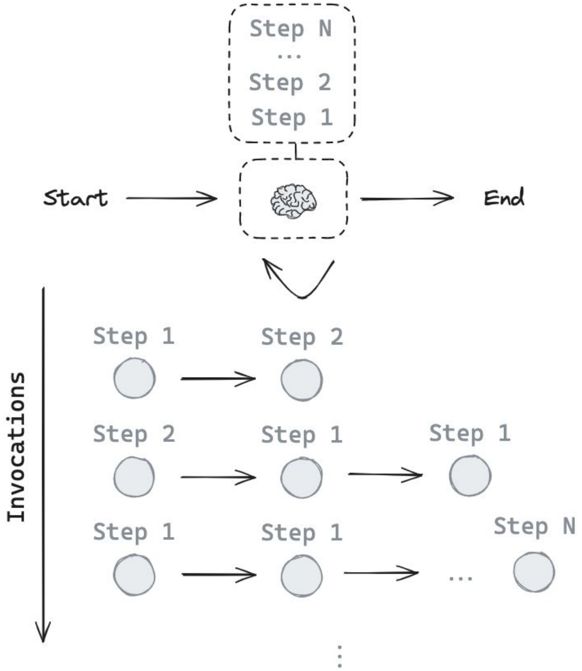
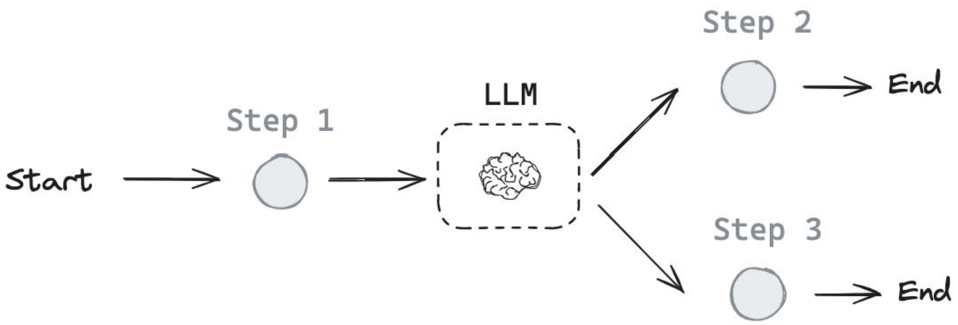
https://blog.langchain.dev/what-is-an-agent/

But, we want LLM systems that can pick their own control flow!

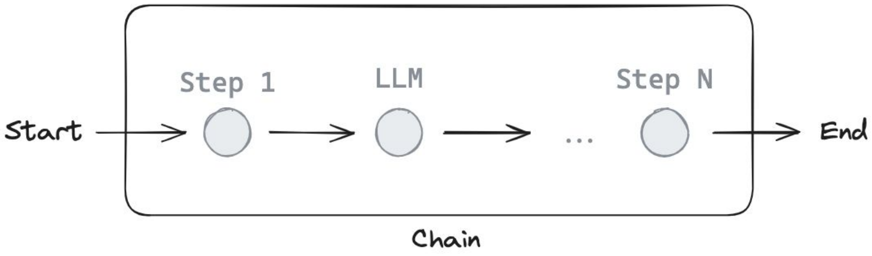


Agent ~= control flow defined by an LLM

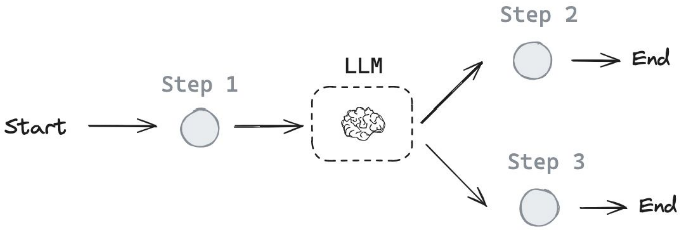


Reference: https://blog.langchain.dev/what-is-an-agent/

Fixed vs LLM-defined control flow

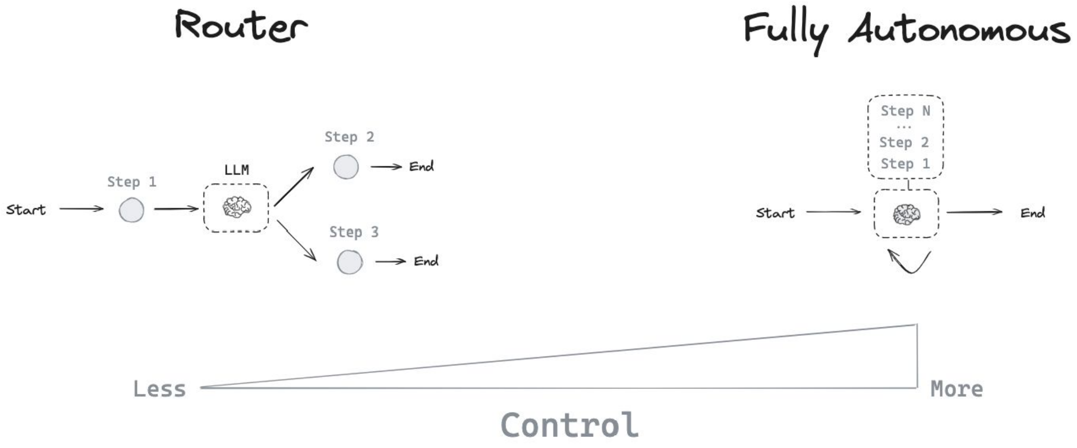


VS



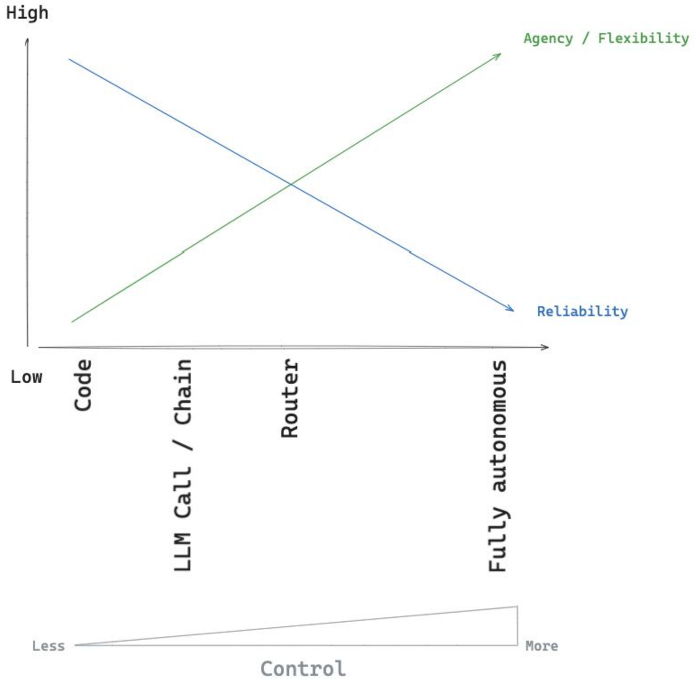
Reference: https://blog.langchain.dev/what-is-an-agent/

Many kinds of agents!

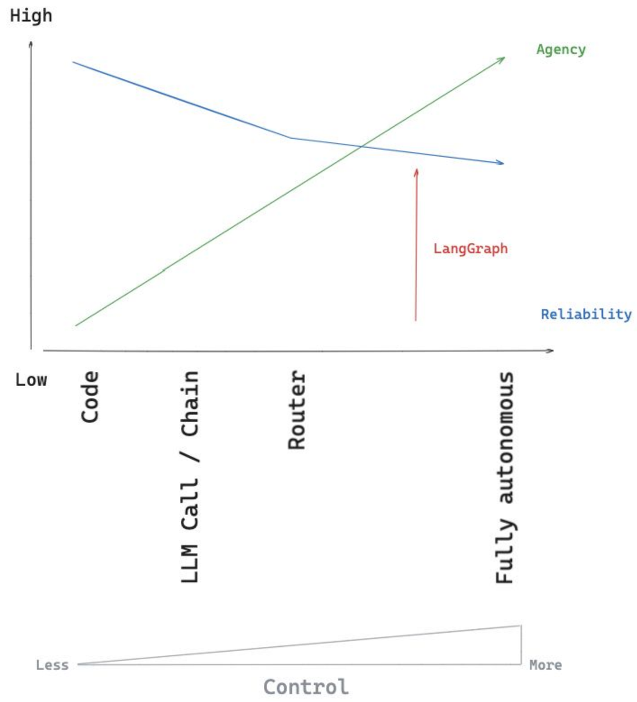


Reference:
https://blog.langchain.dev/what-is-a-cognitive-architecture/
https://x.com/AndrewYNg/status/1801295202788983136

But, practical challenges.



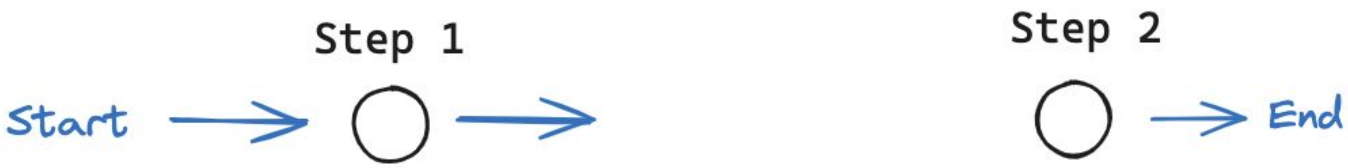
LangGraph helps you bend the reliability curve



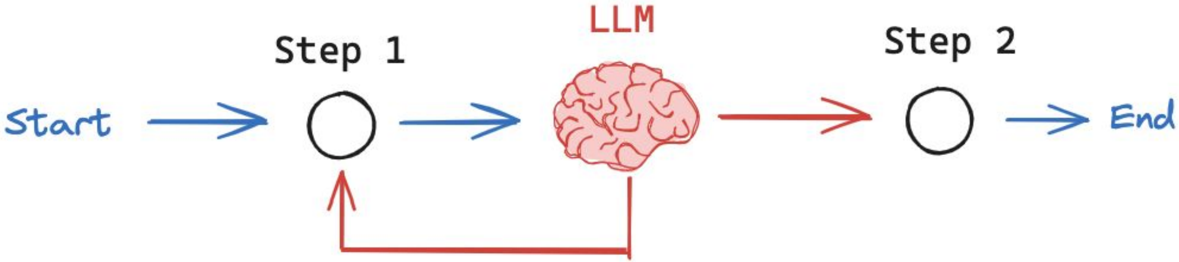
LangGraph

Balance reliability with control

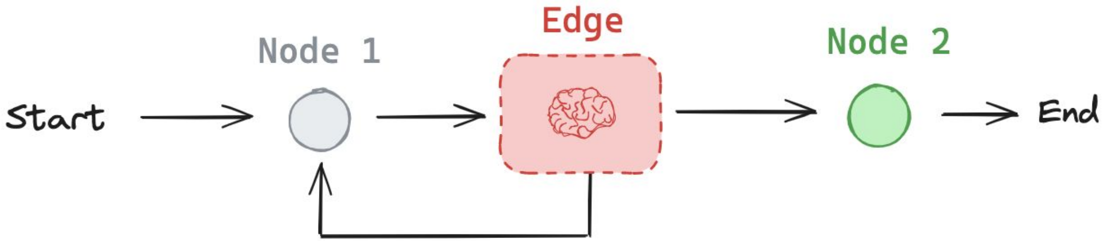
Intuition: Let developer set parts of control flow (reliable)



Intuition: Inject LLM to make it an agent (control)



LangGraph Express custom control flows as graphs

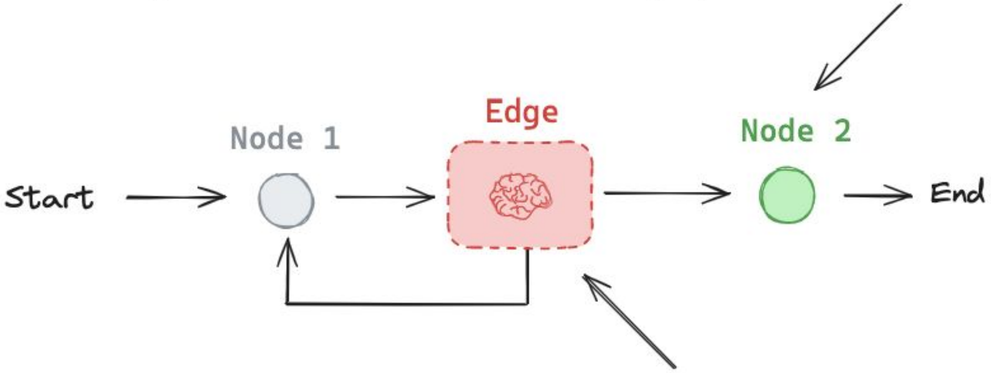


Reference: https://github.com/langchain-ai/langgraph

Introduction and Basics: Motivation

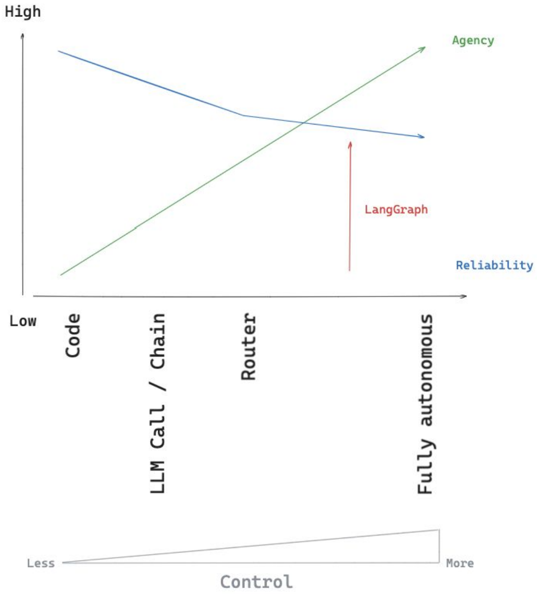
Memory: Shared state across the graph

Tools: Nodes can call tools and modify state



Planning: Edges can route control flow based on LLM decisions

Reference: https://github.com/langchain-ai/langgraph



Module	What you will learn
1: Foundations	LangGraph foundations Chains Routers General autonomous agents
2: Memory	Agents that remember things
3: Human-In-The-Loop	Agents with human oversight
4. Customization	Customized, useful agents

Reference: https://github.com/langchain-ai/langgraph