

Introduction to Tools and Agents

Instructor

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Outline

- What are Tools?
- What are Agents?
- AI Agents with LangChain
- AI Agents with LangGraph

What are Tools?



TOOLS



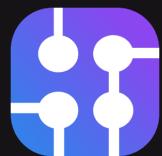
ArXiv



DuckDuckGo



Google



SerpAPI



Tavily



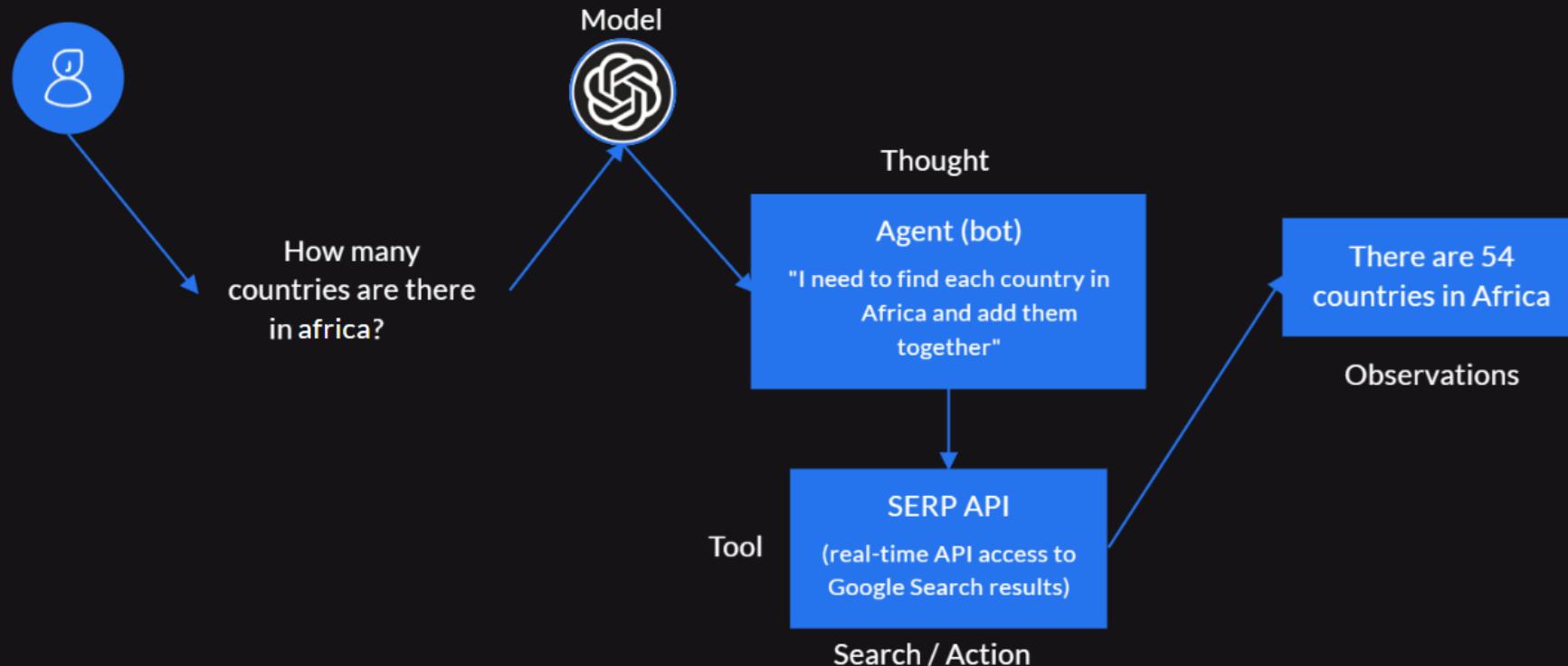
SQL



Wikipedia

- Interfaces that an agent, a chain, or a chat model / LLM can use to interact with the world
- Given a list of available tools and a prompt, an LLM can request that one or more tools be invoked with appropriate arguments.

What are Agents?

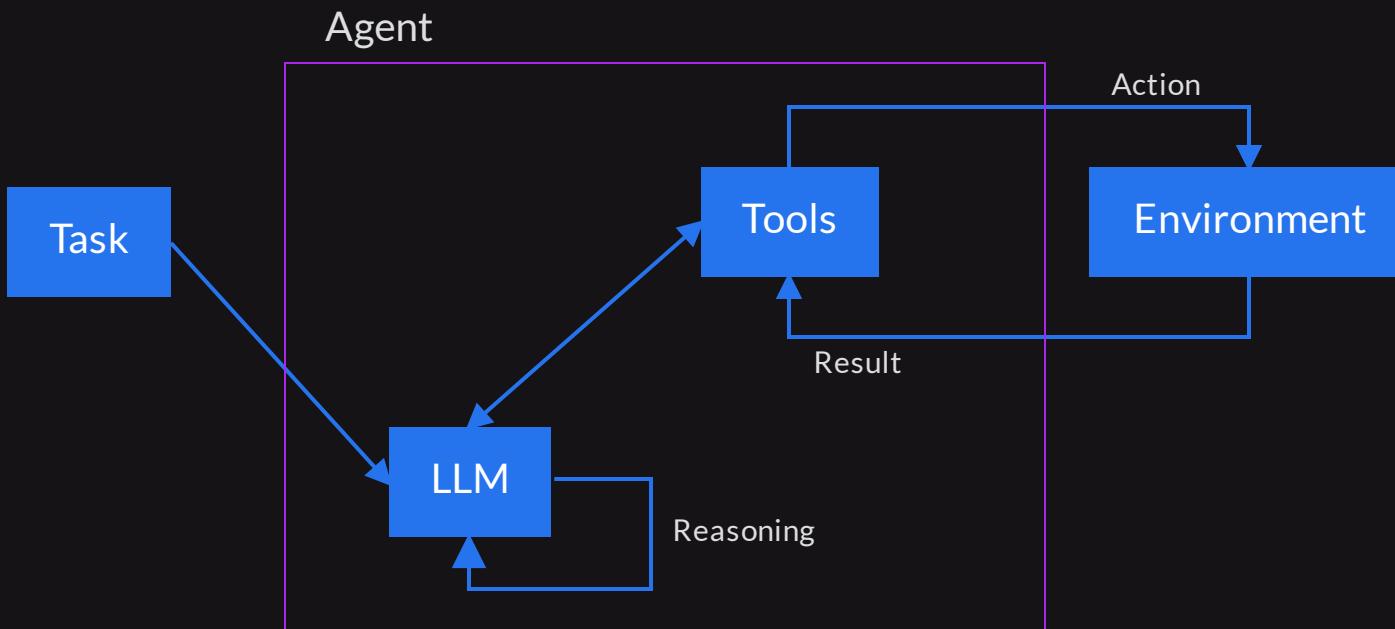


- Agents are systems that use an LLM as a reasoning engine to determine which actions to take and what the inputs to those actions should be.
- The results of those actions can then be fed back into the agent and it determines whether more actions are needed, or whether it is okay to stop.

AI Agents with LangChain

- LangChain allows us to build **tools** with an interface for LLMs and other components to interact with various systems.
 - Example tools include Wikipedia, calculator, search engines, and more
- LangChain enables us to build **agents** that use an LLM to decide on actions to take.
 - These actions are typically done using tools.
 - Agents also require an executor, which is the runtime for the agent and helps execute it.
 - **This is the legacy syntax for building agents**

AI Agents with LangGraph



- Complex LLM applications often use cycles during execution
- These cycles often use the LLM to reason about what to do next in the cycle like Chain of Thought
- This can essentially be thought of as running an LLM in a for-loop
- These types of systems are commonly called AI agents
- LangGraph is the perfect framework to model these agents as Graphs and recommended by LangChain

Thank You
