Intro to AI Agentic Workflows

Foundations of Agentic Workflows

Learning Objectives

By the end of this lesson, you will be able to:

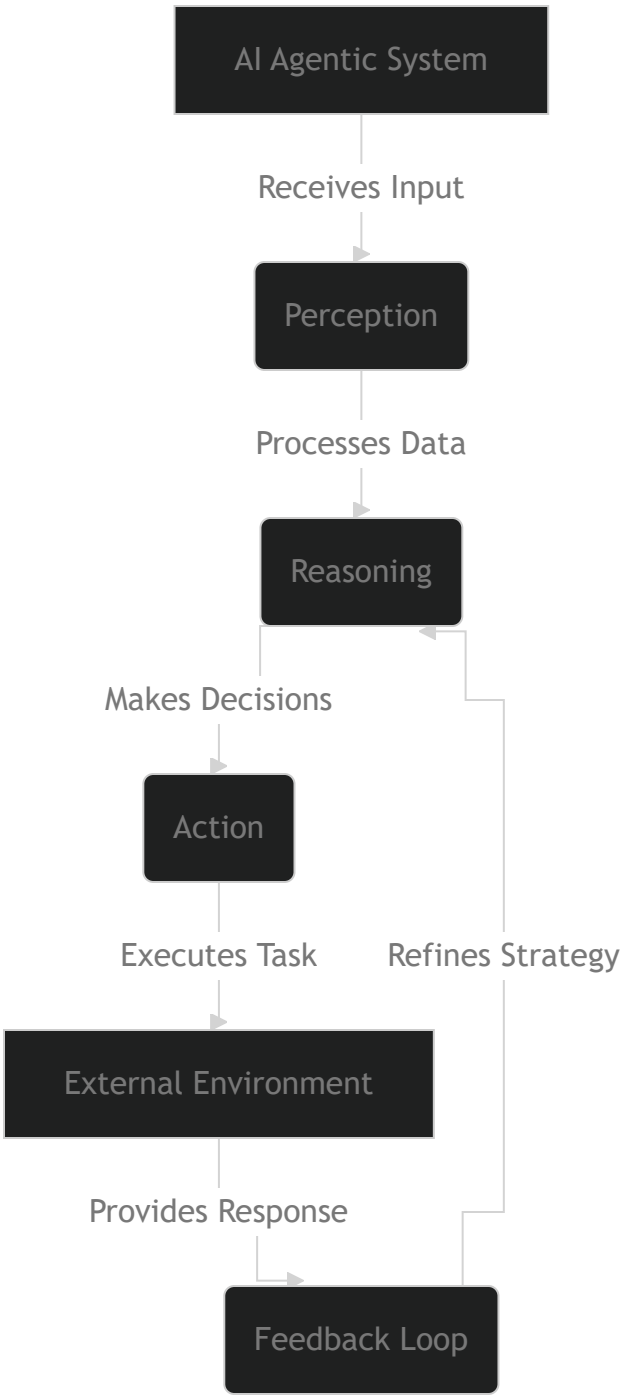
- **Explain** the core components of AI agentic workflows.
- **Understand** how structured frameworks enable AI autonomy.
- **Recognize** key challenges and trade-offs in designing agentic systems.

Introduction

AI **agentic workflows** go beyond traditional AI applications by incorporating **decision-making, iterative feedback loops, and multi-agent collaboration**. These workflows allow AI systems to **act autonomously**, interact with external environments, and **adapt dynamically** based on feedback.

Unlike static LLM-based applications, agentic AI systems are built using **structured frameworks** that define:

- **Perception** – How an AI agent **interprets input** (e.g., user prompts, API data).
- **Reasoning** – How the agent **processes information and makes decisions**.
- **Action** – How the agent **executes tasks** (e.g., retrieving data, generating text).
- **Feedback Loops** – How the agent **evaluates and refines its performance** over time.



These components work together to enable **AI-driven automation, problem-solving, and collaboration** across different domains.

Key Concepts of Agentic Workflows

Concept	Description	Example
AI Agent	A system that **perceives, reasons, and acts autonomously**.	A chatbot that **retrieves answers and refines responses** based on user feedback.
Agentic Workflow	A structured approach where agents **take actions, process feedback, and optimize results**.	A customer support AI that **revises solutions based on sentiment analysis**.
Multi-Agent Collaboration	AI agents working **together**, each with a specialized role.	One agent extracts data, another interprets it, and a third agent generates a summary.
Feedback Loop	A mechanism that **adjusts AI actions based on results**.	A recommendation system that **refines suggestions based on user clicks**.

Quick Discussion: Analyzing an Agentic Workflow

Goal: Identify **key components** in an existing agentic workflow.

Instructions:

1. Open this example AI agent workflow in LangChain.
2. Analyze its structure:
    - **What is the agent's goal?**
    - **How does it process input?**
    - **What actions does it take?**
    - **Does it have a feedback loop?**
3. As a group, write a **brief summary** (3-5 sentences) describing the workflow.
4. Be prepared to discuss your summaires with the class!

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