🔍 1. Motivation for AI Agents

Traditional LLMs (like ChatGPT):

- Excel at **single-turn** Q&A.
- **Struggle** with **multi-step** or **long-running** tasks.

Why AI Agents?

- Enable **autonomous decision-making**.
- Execute **complex, multi-step tasks** over time.

🤖 2. What Is an AI Agent?

Definition:
An **autonomous entity** powered by LLMs (or similar models) that can **perceive, reason, plan, and act** in an environment to achieve a **defined goal**.

Inspired by Human Behavior:

- **Think** → Reasoning
- **Decide** → Planning
- **Act** → Execution

🔄 3. Key Features of Agentic Systems

- **Role-playing**: Agents take on defined roles (e.g., Researcher, Writer, Planner).
- **Memory**: Agents remember context, tasks, and decisions (short-term or long-term).
- **Tools**: Agents can use APIs, search engines, or custom code/functions.
- **Collaboration**: Multiple agents can work together, delegate, and pass tasks.
- **Guardrails**: Set rules or constraints to ensure safety, relevance, and efficiency.

🛠️ 4. CrewAI Framework Overview

Why CrewAI?

- Simplifies building **multi-agent systems** using Python.

Core Concepts:

- **Agent**: A role-driven persona with a focus and capabilities.
- **Tool**: A callable function or API agents can use to accomplish tasks.
- **Task**: A unit of work with a specific goal, assigned to an agent.
- **Crew**: A collection of agents collaborating toward a shared outcome.

🧠 5. Mental Model Shift

Don’t just “prompt an LLM.”
Instead, **design intelligent collaborators** (agents) that work together to **solve problems** over time.