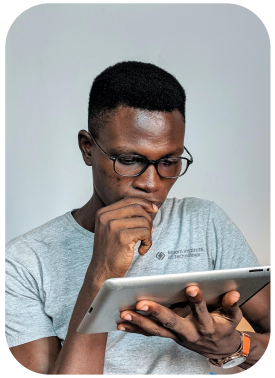
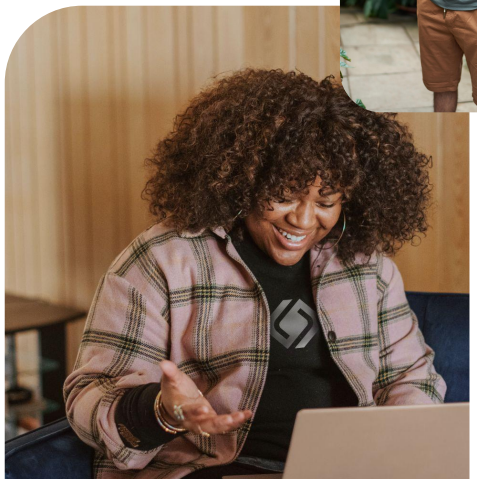
Bloom Institute of Technology

CrewAI

CrewAI is an agentic framework built on top of LangChain that aims to build agents more quickly. CrewAI abstracts the building of agentic workflows, requiring less coding logic while guiding the prompting process.




Core Competencies

The student must demonstrate...

1. When to use CrewAI (5 min)
2. Understand the basic CrewAI components: agents and tasks (10 min)
3. How to build and start agentic workflows in CrewAI (10 min)
4. Examples of agentics workflows in CrewAI (20 min)

When Should You Use CrewAI

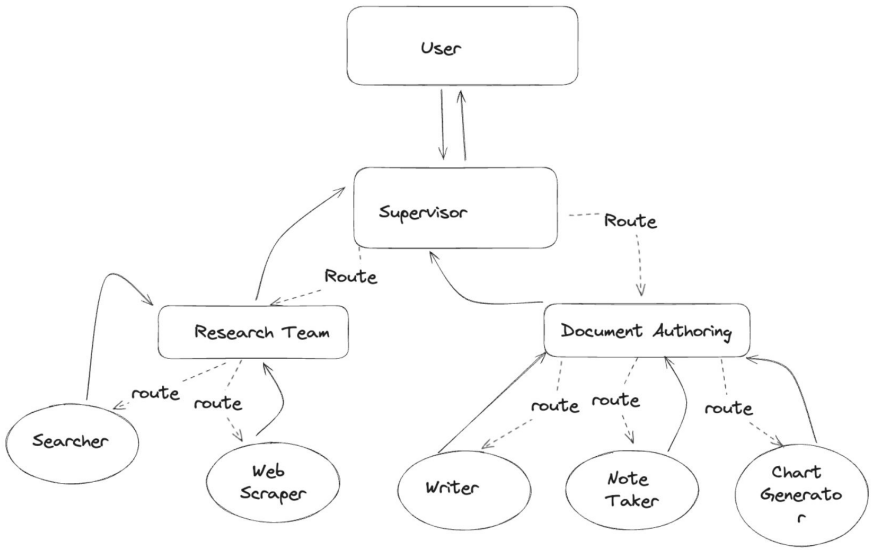
CrewAI is ideal for quickly prototyping and developing MVPs, simple workflows, and easy prototypes, leveraging its large open-source community and pre-built components despite being harder to debug and customize.

Tool	Pros	Cons	Use Cases
LangChain	• More customization • More control to the developer • More flexible integration with other tools • Robust handling of complex workflows • Scalable for large projects	• Development may take much longer • Requires in-depth knowledge of graph/agent implementations • Steeper learning curve	• Data preprocessing • Multi-step data transformation • Graphs with state • Custom Agents
CrewAI	• Quick to prototype • Large open-source community support • Easy to use for beginners • Fast iteration cycle	• Harders to debug • Harder to build custom • Less control over agents • Limited flexibility for complex use cases	• Fast MVP creation • Simple workflows • Easy prototypes • Rapid development of proof-of-concept projects

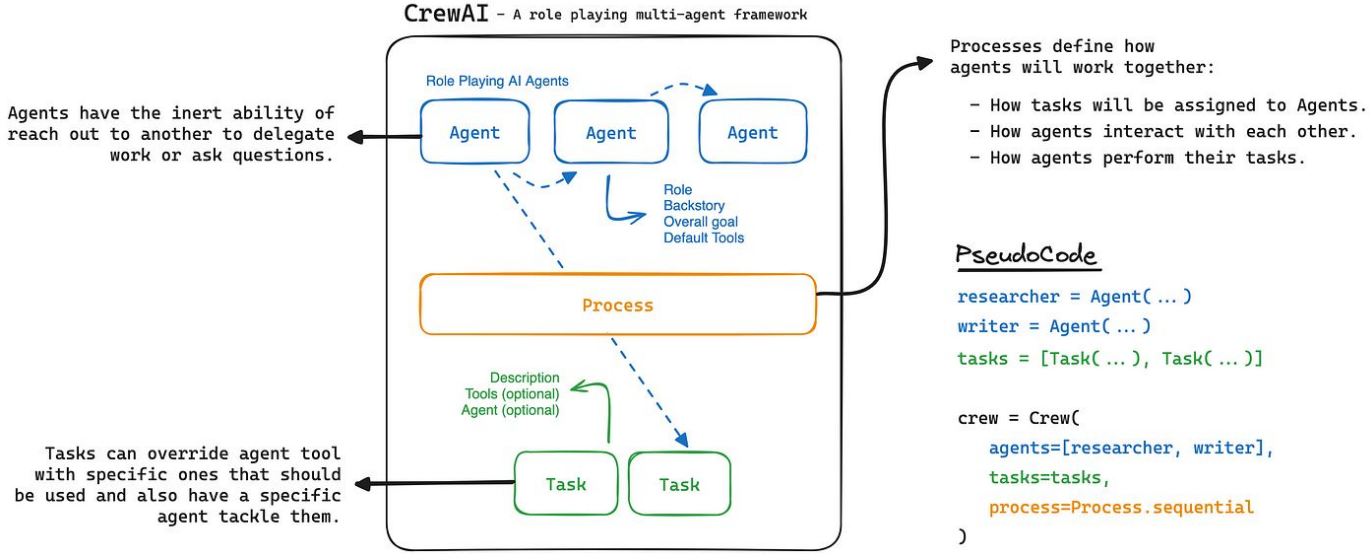
CrewAI Core Concepts

CrewAI is based on a hierarchical teams graph framework where a crew is a team of agents. Each agent performs tasks and communicates with other agents, while memory is shared across the network.

1. **Agents:** Autonomous AI entities that perform specific tasks.
2. **Tasks:** Units of work that agents execute, often composed of multiple steps.
3. **Tools:** Resources that agents use to accomplish tasks, such as APIs or scripts.
4. **Processes:** Defined workflows that outline how tasks should be performed.
5. **Crews:** Groups of agents working together to complete complex projects.
6. **Memory:** Mechanisms for storing and recalling information to maintain context and continuity in tasks.



Getting Started With Your Crew



1. **Create a Crew**: Think of a crew as a team. You'll start by defining the team's purpose and the tasks it needs to accomplish.
2. **Add Agents**: Agents are the team members with specific roles. Decide what roles you need and add agents accordingly.
3. **Define Tasks**: Break down the project into manageable tasks. Assign these tasks to the appropriate agents.
4. **Set Up Memory**: Ensure that agents can share and recall information as needed to maintain context and continuity.
5. **Kick Off**: Once everything is set, start the crew. The agents will begin working on their tasks, collaborating as needed.

Accessed 28 May 2024, <https://krishankantsinghal.medium.com/crewai-ae3eb2a9e87a>.

Hands-On Homework.

Design and share your final project:

1. **Design your final project**: Plan the implementation, specifying the agent's tasks, training strategy, and performance metrics.

2. **Share for Feedback:** Post a your project design, including visual aids and a clear summary, on Slack to invite constructive feedback from your peers.