

Agentic AI Framework Cheat Sheet

Unlock the Power of Autonomous AI with This Beginner-Friendly Guide

Agentic AI is the future smart systems that think, plan, and act on their own. Whether you're new to coding or a curious hobbyist, this cheat sheet breaks down three top frameworks, **LangGraph**, **CrewAI**, and **Smolagents**—to help you build your first AI agent. Plus, get 5 fun project ideas and links to the best tutorials to kickstart your journey!

Framework Cheat Sheet

1. LangGraph

- **What It Is:** A graph-based framework from the LangChain team for building complex AI workflows.
- **Key Features:**
 - Graph workflows for multi-step tasks.
 - Stateful memory to track interactions.
 - Integrates with LangChain tools.
- **Best For:** Projects needing detailed control, like customer support bots.
- **Skill Level:** Intermediate.
- **Setup Basics:**
 - Install: `pip install langgraph`
 - Core Components: Nodes (tasks), Edges (connections), State (memory).
 - Example Use: Create a bot that answers FAQs and escalates issues.
- **Quick Tip:** Start with small graphs to master the flow before scaling up.

2. CrewAI

- **What It Is:** A Python framework for building collaborative AI agent teams.
- **Key Features:**
 - Role-based agents (e.g., researcher, writer).
 - Task delegation and info sharing.
 - Easy-to-use APIs.
- **Best For:** Team-based tasks, like content creation or research.

- **Skill Level:** Beginner to Intermediate.
- **Setup Basics:**
 - Install: pip install crewai
 - Core Components: Agents, Tasks, Tools.
 - Example Use: Build a team where one agent researches and another summarizes.
- **Quick Tip:** Define clear roles to avoid agent overlap.

3. Smolagents

- **What It Is:** A lightweight, open-source framework from Hugging Face for quick AI agent prototypes.
- **Key Features:**
 - Fast setup with Hugging Face models.
 - Simple architecture for single agents.
 - Community-driven support.
- **Best For:** Rapid prototyping, like basic chatbots.
- **Skill Level:** Beginner.
- **Setup Basics:**
 - Install: pip install smolagents
 - Core Components: Agent, Model, Tools.
 - Example Use: Create a chatbot for answering simple questions.
- **Quick Tip:** Use pre-trained models to save time.

Comparison at a Glance

Framework	Ease of Use	Scalability	Best For	Learning Curve
LangGraph	Moderate	High	Complex workflows	Steeper
CrewAI	Easy	Moderate	Multi-agent teamwork	Gentle
Smolagents	Very Easy	Low	Quick prototypes	Minimal

5 Beginner-Friendly Project Ideas

Ready to build something cool? Here are 5 projects perfect for newcomers, with suggested frameworks to match:

1. Personal Task Assistant (Smolagents)

- **What:** An AI that reminds you of daily tasks (e.g., “Water plants at 5 PM”).
- **Why It’s Fun:** Simple to code, useful in real life.
- **How:** Use Smolagents with a pre-trained model to parse text inputs and send reminders via email or a messaging app.
- **Skills Learned:** Text processing, basic API integration.

2. FAQ Chatbot for a Hobby Site (Smolagents)

- **What:** A bot that answers common questions about your favorite topic (e.g., “What’s the best sci-fi book?”).
- **Why It’s Fun:** Share your passion with others.
- **How:** Train a Smolagents model on a small dataset of Q&A pairs and deploy it on a simple website.
- **Skills Learned:** Model training, web deployment.

3. Content Research Team (CrewAI)

- **What:** Two agents—one researches a topic (e.g., “AI trends”), and another summarizes findings.
- **Why It’s Fun:** See agents work together like a real team.
- **How:** Set up CrewAI with a researcher agent using web search tools and a writer agent to draft a summary.
- **Skills Learned:** Multi-agent collaboration, tool integration.

4. Travel Planner Bot (LangGraph)

- **What:** An AI that suggests a travel itinerary based on your preferences (e.g., “3 days in Paris”).
- **Why It’s Fun:** Plan dream trips effortlessly.
- **How:** Use LangGraph to create a workflow where the agent searches for activities, checks budgets, and builds a plan.
- **Skills Learned:** Graph-based workflows, API connections.

5. Recipe Suggestion Agent (CrewAI)

- **What:** An agent that suggests recipes based on ingredients you have (e.g., “I have chicken and rice”).

- **Why It's Fun:** Solve dinner dilemmas creatively.
 - **How:** Configure CrewAI with one agent to search recipes and another to tailor suggestions to your pantry.
 - **Skills Learned:** Data parsing, agent coordination.
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Top Tutorials to Get Started

These beginner-friendly tutorials will guide you step-by-step:

1. LangGraph:

- **"Getting Started with LangGraph"** (LangChain Docs)
Learn the basics of graph-based agents with examples.
Link: [LangChain Documentation](#)
- **"Build a Customer Support Bot with LangGraph"** (YouTube)
A video walkthrough for a practical project.
Link: [Search YouTube for "LangGraph tutorial"](#)

2. CrewAI:

- **"CrewAI Quickstart Guide"** (CrewAI Docs)
Set up your first multi-agent system in under an hour.
Link: [CrewAI Documentation](#)
- **"CrewAI for Beginners: Build a Research Team"** (Medium)
A written guide with code snippets.
Link: [Search Medium for "CrewAI tutorial"](#)

3. Smolagents:

- **"Hugging Face Smolagents Intro"** (Hugging Face Docs)
A simple guide to building your first agent.
Link: [Hugging Face Documentation](#)
 - **"Create a Chatbot with Smolagents"** (GitHub)
A community tutorial with ready-to-run code.
Link: [Search GitHub for "Smolagents tutorial"](#)
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Bonus Tips for Success

- **Start Small:** Pick one project and one framework to avoid overwhelm.
- **Join Communities:** Find support on Discord or Reddit (e.g., [r/learnmachinelearning](#)).
- **Experiment:** Tweak your agent's prompts or tools to see what works best.
- **Have Fun:** Building AI is like solving a puzzle—enjoy the process!