Swarm

Swarm is an experimental framework developed by **OpenAI**, designed to make it easy and lightweight to orchestrate multiple AI agents working together to perform complex tasks.

It introduces two primary abstractions:

- **Agents:**

Every agent is a small AI which is created for some specific work.

- **Handoffs:**

When one agent completes its task, it transfers the work to another agent — this process is called a *handoff*.

This design allows for scalable and testable coordination among multiple AI agents, each specializing in distinct tasks to collaboratively achieve complex objectives.

What is Agents SDK?

The Agents SDK is a powerful new tool from OpenAI that helps developers solve complex tasks by effectively managing and orchestrating multiple AI agents.

1. Prompt Chaining:

Breaking a big task into smaller steps, where each step uses the result of the previous one.

How does Agents SDK help?
You can design agents that work one after the other, in a specific order.

Example:
A content creation tool:

- First agent: does topic research
- Second agent: creates an outline
- Third agent: writes the full article
- Fourth agent: proofreads the article

2. Routing:

Sending a task to the agent best suited to handle it.

How in Agents SDK?
Using the handoff system, one agent can pass control to another.

Example:
A chatbot asks, “What issue are you facing?”
If the user says, “Internet is not working,”
→ the chatbot routes the query to a technical support agent.

3. Parallelization:

Running multiple tasks at the same time to save time and improve efficiency.

How in Agents SDK?
You can create agents that work simultaneously.

Example:
You want to generate an image:

- One agent writes a prompt based on a description
- Another agent generates the image
- A third agent checks the image quality

All agents work at the same time.

4. Orchestrator-Workers:

An orchestrator agent breaks a task into smaller parts and assigns them to worker agents.

How does Agents SDK help?
You can define an orchestrator agent to divide and manage work.

Example:
In a data analysis system:

- Orchestrator says: “Make the monthly sales report.”
- Worker 1: collects the data
- Worker 2: creates charts
- Worker 3: writes a summary

5. Evaluator-Optimizer:

What is it?
An evaluator agent checks the work of other agents and gives suggestions to improve it — like a feedback loop.

How in Agents SDK?
It has a "guardrails" feature to help with evaluation and improvement.

Example:
In a translation system:

- A worker agent translates the text
- An evaluator agent checks if the translation is correct
- If there’s a mistake, the evaluator tells the optimizer agent to fix it