Training: Google Cloud

# Deploy multi-agent systems with Agent Development Kit and Agent Runtime

## TRAINING GOALS:

In this course, you'll learn to use the Google Agent Development Kit to build complex, multi-agent systems. You will build agents equipped with tools, and connect them with parent-child relationships and flows to define how they interact. You'll run your agents locally and deploy them to Agent Runtime to run as a managed agentic flow, with infrastructure decisions and resource scaling handled by Agent Runtime.

**What you'll learn**:

- Build an agent with tools using the Google Agent Development Kit.
- Establish interaction patterns between multiple agents with parent child relationships and flows.
- Utilize features such as session memory, artifact storage, and callbacks.
- Deploy a multi-agent app to Agent Runtime.
- Query an agent app running on Agent Runtime.
- Evaluate agents within the Agent Development Kit.

**Audience**

Machine learning engineers, Gen AI engineers.

**Products**

- Agent Runtime on Gemini Enterprise Agent Platform
- Agent Retrieval on Gemini Enterprise Agent Platform
- Agent Gateway
- Agent Development Kit

## CONSPECT:

- Module 1 - Get started with the Agent Development Kit



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- Topics:
  - Basics of building an agent in the Agent Development Kit.
- Objectives:
  - Explain how the Agent Development Kit compares to other tools such as the Google Gen AI SDK or LangChain.
  - Describe the parameters used to build an agent in Agent Development Kit.

- Module 2 - Empower Agent Development Kit agents with tools
  - Topics:
    - Enhance agents with tools and cover the growing breadth of available tools.
  - Objectives:
    - Discuss the importance of structured docstrings and typing when writing tool functions for agents.
    - Demonstrate the ability to provide tools to an agent.
    - List common and useful tools available for the Agent Development Kit agents, including LangChain Tools.
- Module 3 - Build multi-agent systems with Agent Development Kit
  - Topics:
    - Manage communication and task-sharing between agents through parent-child relationships and flows to enable coordinated responses to queries.
  - Objectives:
    - Describe the directory structure and naming conventions encouraged by the Agent Development Kit.
    - Demonstrate the ability to create multiple agents and relate them to one another with parent-child relationships.
    - Describe the different flow options and when you might use them.
    - Get responses that have passed through multiple agents.
    - Control content at different points with callbacks.
- Module 4 - Deploy Agent Development Kit agents to Agent Runtime
  - Topics:
    - Deploying agent apps to Agent Runtime and querying responses.
  - Objectives:
    - Describe the benefits of deploying agents, especially multi-agent systems, to Agent Runtime over self-hosting, such as in Agent Platform online predictions.
    - Demonstrate deploying to Agent Runtime.
    - Demonstrate querying a deployed agent app.
- Module 5 - Evaluate agent systems
  - Topics:
    - Evaluate agents within the Agent Development Kit.



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- Objectives:
  - Run programmatic evaluation benchmarks on multi-agent workflows using the Agent Development Kit.
  - Inspect and analyze evaluation metrics utilizing the diagnostic web interface.

## REQUIREMENTS:

Python, gen AI prompt engineering, gen AI tool use.

## Difficulty level



## CERTIFICATE:

The participants will obtain certificates signed by Google Cloud (course completion).

## TRAINER:

Authorized Google Cloud Trainer



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