Training: Google Cloud
Agent Operations on Google Cloud

Google Cloud

TRAINING GOALS:

In this course, you will use your knowledge of developing agents using the Agent Development Kit to operationalize agents using Agent Operations (AgentOps) on Google Cloud. After reviewing the challenges of managing production agents and deployment targets, you will build CI/CD pipelines for agents and leverage a governed artifact management ecosystem. You will implement evaluation systems using the GenAI Evaluation Service and ADK and apply observability solutions for debugging with Cloud Logging and Cloud Trace. You will integrate security guardrails against agent-specific threats using Model Armor and Sensitive Data Protection. Finally, you will apply FinOps strategies to understand and manage agent costs.

What you'll learn:

- Optimize efficiency and consistency of agent deployments with CI/CD
- Ensure agent quality by implementing and operating evaluation
- systems
- Leverage observability solutions for debugging and continuous
- improvement
- Establish guardrails against agent-specific threats
- Build and use a governed artifact management ecosystem
- Apply FinOps strategies to understand and manage agent costs

Audience

Application Developers, DevOps Engineers, ML Engineers and anyone deploying agentic applications on Google Cloud

Products

- Agent Platform
- Agent Runtime on Gemini Enterprise Agent Platform
- Agent Studio on Gemini Enterprise Agent Platform

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- Conversational Agents
- Agent Platform Agents

CONSPECT:

- Module 1 - Introduction to AgentOps on Google Cloud
  - Topics:
    - Challenges of managing production agents
    - Core principles of AgentOps
    - AgentOps on Google Cloud
  - Objectives:
    - Navigate the challenges of managing production agents
    - Define the core principles of AgentOps
    - Architect agent operations on Google Cloud
- Module 2 - CI/CD for Agent Deployments
  - Topics:
    - CI/CD review
    - Agentic deployment targets
    - CI/CD tooling and patterns on Google Cloud
    - Cloud Build automation
  - Objectives:
    - Leverage CI/CD tooling and patterns for agentic solutions on Google Cloud
    - Select the deployment target for agents on Google Cloud
    - Build a complete CI/CD pipeline for an agent
  - Activities:
    - Lab: CI/CD for Agents on Google Cloud
- Module 3 - Observability for Debugging and Improvement
  - Topics:
    - Observability review
    - Logging with agent callback logging
    - Logging and tracing with OpenTelemetry
  - Objectives:
    - Identify challenges addressed by observability
    - Instrument an ADK agent with structured logs
    - Enable OpenTelemetry tracing on Agent Engine and Cloud Run

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- Leverage BigQuery and Looker Studio for visualization
- Activities:
  - Lab: Instrument and Debug Agents with Cloud Logging, and Cloud Trace

- Module 4 - Agent Evaluation and Quality Assurance
  - Topics:
    - Testing generative AI model responses
    - Evaluating model responses
  - Objectives:
    - Perform validation on model responses
    - Evaluate agent behavior, tool usage, and trajectory correctness
    - Create and manage evalsets using ADK Web UI
    - Evaluate evalsets with ADK UI, CLI, or code
    - Use the Agent Platform Generative AI Evaluation Service
- Module 5 - Security and Governance
  - Topics:
    - Model and context security
    - Agent access
  - Objectives:
    - Secure model inputs and outputs with Model Armor
    - Protect sensitive data using Sensitive Data Protection with Model Armor
    - Secure the connection between a user and an agent
- Module 6 - Applying FinOps to Agent Costs
  - Topics:
    - Primary cost drivers for AI Agents
    - Cost-efficienct agentic systems
    - FinOps on Google Cloud
  - Objectives:
    - Identify the primary cost drivers of AI agents
    - Reduce token and model costs
    - Architect cost-efficient agent systems
    - Implement a measurable AI FinOps loop on Google Cloud

REQUIREMENTS:

- Completion of "Deploy Multi-Agent Systems with Agent Development Kit and Agent
- Engine" or equivalent knowledge

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- Python
- Prompt engineering
- Agent Development Kit

Difficulty level

CERTIFICATE:

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

TRAINER:

Authorized Google Cloud Trainer

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