Agent Operations on Google Cloud

Duration: 1 Day Course Code: GO5979

Overview:

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.

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Target Audience:

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

Objectives:

- **After this course participants should be able to:**
- Navigate the challenges of managing production agents
- Define the core principles of AgentOps
- Architect agent operations on Google Cloud
- 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
- Identify challenges addressed by observability
- Instrument an ADK agent with structured logs
- Enable OpenTelemetry tracing on Agent Engine and Cloud Run
- Leverage BigQuery and Looker Studio for visualization
- 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
- 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
- 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

Prerequisites:

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

Testing and Certification

None

Follow-on-Courses:

None

Content:

01- Introduction to AgentOps on Google Cloud

- Challenges of managing production agents
- Core principles of AgentOps
- AgentOps on Google Cloud

02- CI/CD for Agent Deployments

- CI/CD review
- Agentic deployment targets
- CI/CD tooling and patterns on Google Cloud
- Cloud Build automation
- Activities for Module 2:
- Lab: CI/CD for Agents on Google Cloud
- Lab: CI/CD for Agents on Google Cloud

03- Observability for Debugging and Improvement

- Observability review
- Logging with agent callback logging
- Logging and tracing with OpenTelemetry
- Activities for Module 3:
- Lab: Instrument and Debug Agents with Cloud Logging, and Cloud Trace

04- Agent Evaluation and Quality Assurance

- Testing generative AI model responses
- Evaluating model responses

05- Security and Governance

- Model and context security
- Agent access

06- Applying FinOps to Agent Costs

- Primary cost drivers for AI Agents
- Cost-efficient agentic systems
- FinOps on Google Cloud

Additional Information:

Official course book provided to participants

Further Information:

For More information, or to book your course, please call us on Head Office Tel.: +974 40316639

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