Cloud Hero: Gemini & Vertex AI Training

Duration: **1 Day**

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Cloud Hero: Gemini & Vertex AI provides practical experience for learners who want to modernise application development using Vertex AI and Gemini. The course focuses on applying natural language prompts to tasks such as code generation, function calling, information extraction, and the integration of Gemini capabilities into applications.

Participants interact with Gemini models through both **cURL commands** and the **Python SDK**, gaining hands-on experience with API-based development. The course covers sending text and multimodal prompts, defining system instructions, and configuring model parameters and safety filters.

More advanced Gemini capabilities are also explored, including function calling, entity extraction, token counting, context caching, text embeddings, streaming, and asynchronous requests. In the final part of the course, participants bring these skills together by integrating the Gemini API into a practical application. Using **Streamlit**, learners build a sample application and deploy it to **Google Cloud Run**.

The course therefore moves beyond simply experimenting with Gemini models and focuses on incorporating generative AI directly into modern application development workflows.

Prerequisites

Participants should have previous experience working with **Vertex AI**.

Who Should Attend

This course is designed for developers and technical professionals with moderate Vertex AI experience who want to **modernise application development using Vertex AI and Gemini**.

What You Will Learn

By the end of this course, participants will be able to:

- Install and use the Vertex AI Python SDK,
- Interact with Gemini models through cURL and the Python SDK,
- Work with text, image, and video content through prompts,
- Generate and use function calls from natural language prompts,
- Extract information and entities from data using Gemini,
- Integrate the Gemini API into applications,
- Build a Streamlit application and deploy it on Google Cloud Run.

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Training Outline

Getting Started with the Vertex AI Gemini API Using cURL

This section introduces the fundamental steps for interacting with Gemini through the API.

- Install the Python SDK
- Use the Gemini API in Agent Platform to interact with models
- Generate content from text prompts
- Work with image inputs
- Use video content as model input

Introduction to Function Calling with Gemini

Participants explore how natural language requests can be connected with application functions and external services.

- Install the Google Gen AI SDK for Python
- Generate function calls from text prompts with the Gemini API
- Build scenarios that provide customers with information about Google Store products
- Call an external API to geocode addresses
- Extract entities from log data

Getting Started with the Vertex AI Gemini API and Python SDK

This section explores more extensive application integration with Gemini through Python.

- Use the Google Gen AI SDK for Python to interact with generative AI services and models
- Connect to an API service
- Send text and multimodal prompts
- Define system instructions
- Configure model parameters
- Apply and manage safety filters
- Create multi-turn chat interactions
- Work with content streaming
- Handle asynchronous requests
- Use token counting
- Apply context caching
- Implement function calling
- Work with text embeddings

Building Applications with Streamlit, Cloud Run, and the Gemini API

The final section combines the course concepts within a practical application workflow.

- Integrate the Gemini API in Agent Platform with applications
- Build a sample application using the Streamlit framework
- Prepare the application for Google Cloud Run
- Deploy the completed application to Cloud Run