**Challenge Scenario**

As a developer at a pioneering startup specializing in AI-driven video content analysis, you're tasked with harnessing Gemini's cutting-edge capabilities to elevate the platform's functionality. Your mission is to implement three pivotal features using Gemini's APIs: text generation, function calls, and video content analysis.

Your long-term objective is to enhance the platform's capabilities, enabling it to automatically generate coherent and polished text, execute specific actions or commands, and describe video contents using Gemini's state-of-the-art AI capabilities. Your goal for today is to implement demos of these features using Gemini's APIs, ensuring they meet the expected standards before deploying them to production.

Your success in this challenge will not only advance the platform's functionality but also demonstrate your proficiency in leveraging Gemini's state-of-the-art AI capabilities to address real-world problems in the realm of video content analysis. Are you ready to take on the challenge?

**Task 1. Generate text using Gemini**

In this section, you are tasked with calling the Gemini API via Cloud Shell to confirm your understanding of how to make API calls.

1. Run the following command to set environment variables required.

PROJECT\_ID=qwiklabs-gcp-02-e5da6cd0fc9b

LOCATION=us-west1

API\_ENDPOINT=${LOCATION}-aiplatform.googleapis.com

MODEL\_ID="gemini-2.0-flash-001"

1. Enable the APIs required to call Gemini APIs via cloud console.

**Hint:**You can perform this step in Cloud Console in the Vertex AI section of the UI.

1. Call the gemini-2.0-flash-001 model via curl in **Cloud Shell**. Use the following documentation to assist you properly write the curl command: [Send Chat Prompts to Gemini](https://cloud.google.com/vertex-ai/docs/generative-ai/multimodal/send-chat-prompts-gemini#send_chat_prompts). Ask the following question:

Why is the sky blue?

Click  to verify the objective.

Enable the required API

**Task 2. Open the notebook in Vertex AI Workbench**

1. In the Google Cloud console, on the **Navigation menu** (Navigation menu icon), click **Vertex AI > Workbench**.
2. Find the generative-ai-jupyterlab instance and click on the **Open JupyterLab** button.

The JupyterLab interface for your Workbench instance opens in a new browser tab.

**Task 3. Create a function call using Gemini**

1. Open the gemini-explorer-challenge file.
2. In the **Select Kernel** dialog, choose **Python 3** from the list of available kernels.
3. Run through the **Getting Started** and the **Import libraries** sections of the notebook.
   * For **Project ID**, use qwiklabs-gcp-02-e5da6cd0fc9b, and for **Location**, use us-west1.

**Note:** You can skip any notebook cells that are noted *Colab only*. If you experience a 429 response from any of the notebook cell executions, wait 1 minute before running the cell again to proceed.

1. Complete the missing parts of each cell to progress to the next section. These will be denoted with INSERT and an instruction to complete.

**Note:** Ensure you can see the weather related data in the response that is printed.

Click  to verify the objective.

Create a function call with Gemini

**Task 4. Describe video contents using Gemini**

In this section, you are tasked with completing the python code in cells of a Jupyter notebook which leverage the Gemini 2.0 Flash 001 model to describe contents of a video.

1. Remain in Vertex AI Workbench and proceed to the cell with the comment # Task 4.
2. Complete the required sections of the notebook gemini-explorer-challenge under Task 4.