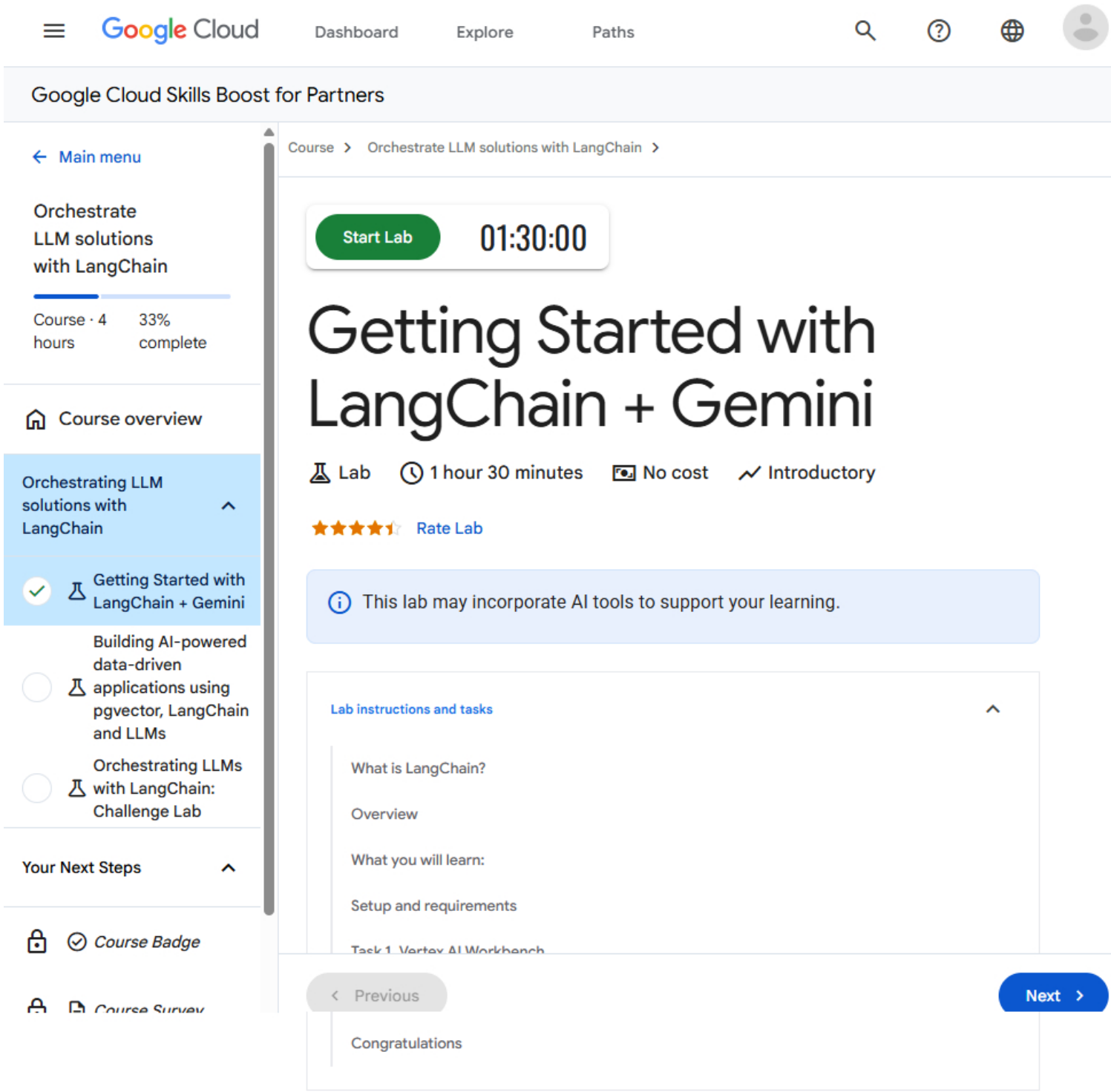


## What is LangChain?

LangChain is a framework for developing applications powered by large language models (LLMs).

TL;DR LangChain makes the complicated parts of working and building with

language models easier. It helps do this in two ways:

1. **Integration** - Bring external data, such as your files, other applications, and API data, to LLMs

2. **Agents** - Allows LLMs to interact with its environment via decision making and use LLMs to help decide which action to take next

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## Overview

This lab will provide an introductory, hands-on experience with LangChain and Gemini.

Google's foundation models are officially integrated with the LangChain Python SDK, making it convenient to build applications with Google models using LangChain. The Google integrations also offer components for conveniently loading documents from BigQuery, Bigtable, Cloud SQL, Cloud Storage, Google Drive, and more data sources. You can also use many Google databases as vector stores. You can also call other models hosted in Vertex AI's Model Garden, like Anthropic's Claude or Meta's Llama from LangChain.

- Gemini with LangChain
- LangChain with Vertex AI Text Embeddings
- LangChain with Vertex AI Multimodal Embeddings

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## What you will learn:

This lab provides an introductory understanding of Langchain components and use cases of LangChain with Vertex AI and Gemini.

- Introduce LangChain components
- Showcase LangChain + Vertex AI - Text, Chat and Embedding
- Summarizing a large text
- Question/Answering from PDF (retrieval based)
- Chain LLMs with Google Search

# Setup and requirements

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Read these instructions. Labs are timed and you cannot pause them. The timer, which starts when you click **Start Lab**, shows how long Google Cloud resources will be made available to you.

This Qwiklabs hands-on lab lets you do the lab activities yourself in a real cloud environment, not in a simulation or demo environment. It does so by giving you new, temporary credentials that you use to sign in and access Google Cloud for the duration of the lab.

**What you need**

To complete this lab, you need:

- Access to a standard internet browser (Chrome browser recommended).
- Time to complete the lab.

**Note:** If you already have your own personal Google Cloud account or project, do not use it for this lab.

**Note:** If you are using a Pixelbook, open an Incognito window to run this lab.

**How to start your lab and sign in to the Google Cloud Console**

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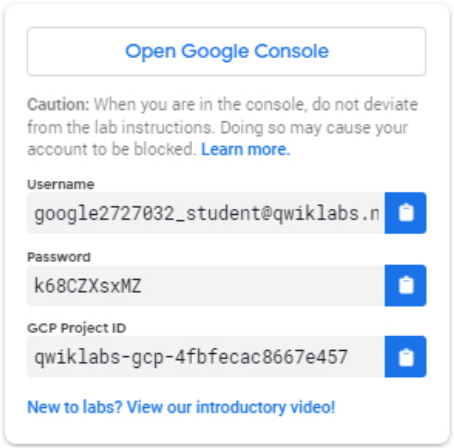
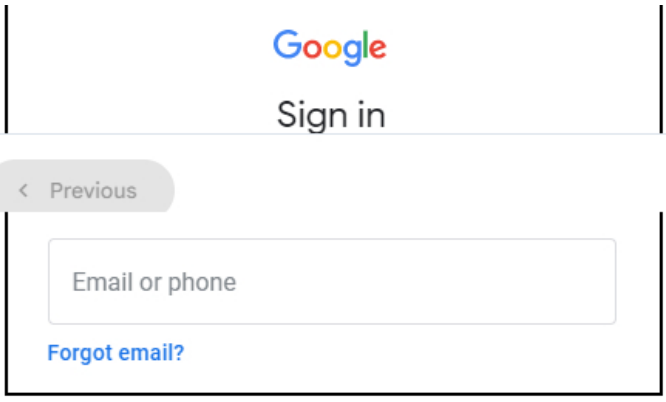
to select your payment method. On the left is a panel populated with the temporary credentials that you must use for this lab.




2. Copy the username, and then click **Open Google Console**. The lab spins up resources, and then opens another tab that shows the **Sign in** page.

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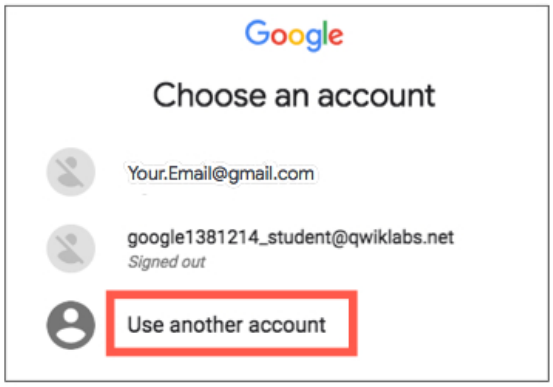
***Tip:*** Open the tabs in separate windows, side-by-side.

If you see the **Choose an account** page, click **Use Another Account**.




3. In the **Sign in** page, paste the username that you copied from the Connection Details panel. Then copy and paste the password.

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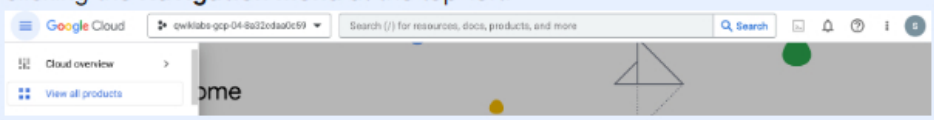
not use your Qwiklabs credentials. If you have your own Google Cloud account, do not use it for this lab (avoids incurring charges).

4. Click through the subsequent pages:

- Accept the terms and conditions.
- Do not add recovery options or two-factor authentication (because this is a temporary account).
- Do not sign up for free trials.

After a few moments, the Cloud Console opens in this tab.

**Note:** You can view the menu with a list of Google Cloud Products and Services by clicking the **Navigation menu** at the top-left.



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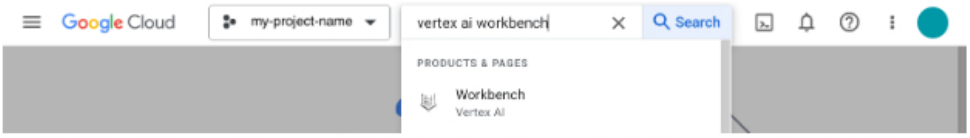
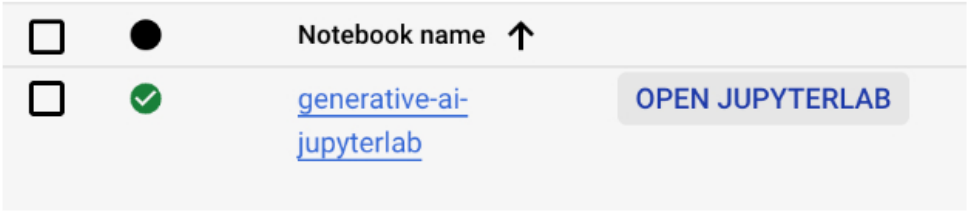
# Task 1. Vertex AI Workbench

1. In your Google Cloud console, navigate to Vertex AI Workbench. In the top search bar of the Google Cloud console, enter **Vertex AI Workbench**, and click on the first result.




2. Select **User-Managed Notebooks**, then select **Open JupyterLab** for **generative-ai-jupyterlab** notebook.

The JupyterLab will run in a new tab.

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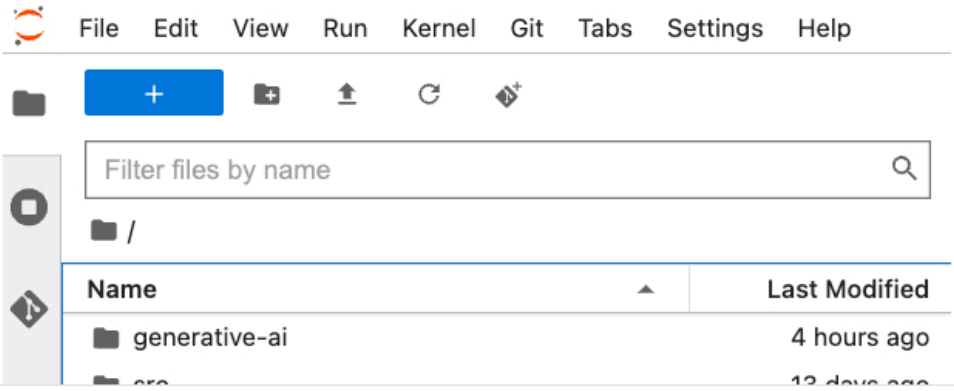
# Task 2. Open the generative-ai folder

1. Navigate to the `generative-ai` folder on the left hand side of the notebook.
2. Navigate to the `gemini/orchestration` folder.
3. Click on the `intro_langchain_gemini.ipynb` file
4. Follow the steps in the notebook and run each cell one at a time.



# Congratulations

You have now completed the lab! In this lab, you explored working with Gemini in LangChain using the Python SDK.

## Next steps

- Dive deeper into integrations between Vertex AI and LangChain with Reasoning Engine to easily host and trace LangChain applications on Google Cloud.
- Learn more about Generative AI on the Google Cloud Tech YouTube channel.

## Google Cloud Training & Certification

...helps you make the most of Google Cloud technologies. Our classes include technical skills and best practices to help you get up to speed quickly and continue your learning journey. We offer fundamental to advanced level training, with on-demand, live, and virtual options to suit your busy schedule. Certifications help you validate and prove your skill and expertise in Google Cloud technologies.

**Manual Last Updated September 04, 2024**

**Lab Last Tested September 04, 2024**