Start Lab 01:00:00

Introducing the Keras Functional API

1 hour Free ★★★★☆

Overview

Duration is 1 min

In this lab, you will use feature columns to build a Wide & Deep model.

The idea behind Wide & Deep models is to join the two methods of learning through memorization and generalization by making a wide linear model and a deep learning model to accommodate both.

What you learn

In this lab, you will:

- Understand embeddings and how to create them with the feature column API
- Understand Deep and Wide models and when to use them
- Understand the Keras functional API and how to build a deep and wide model with it

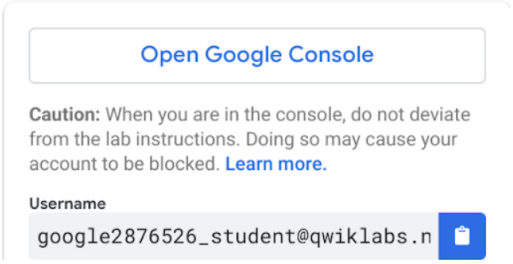
Setup

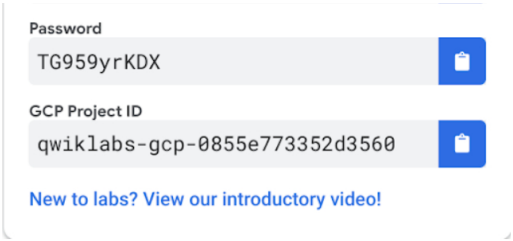
For each lab, you get a new Google Cloud project and set of resources for a fixed time at no cost.

1. Make sure you signed into Qwiklabs using an **incognito window**.
2. Note the lab's access time (for example, 02:00:00 and make sure you can finish in that time block.

   There is no pause feature. You can restart if needed, but you have to start at the beginning.

3. When ready, click START LAB .
4. Note your lab credentials. You will use them to sign in to the Google Cloud Console.





5. Click **Open Google Console**.
6. Click **Use another account** and copy/paste credentials for **this** lab into the prompts.

> If you use other credentials, you'll get errors or **incur charges**.

7. Accept the terms and skip the recovery resource page.

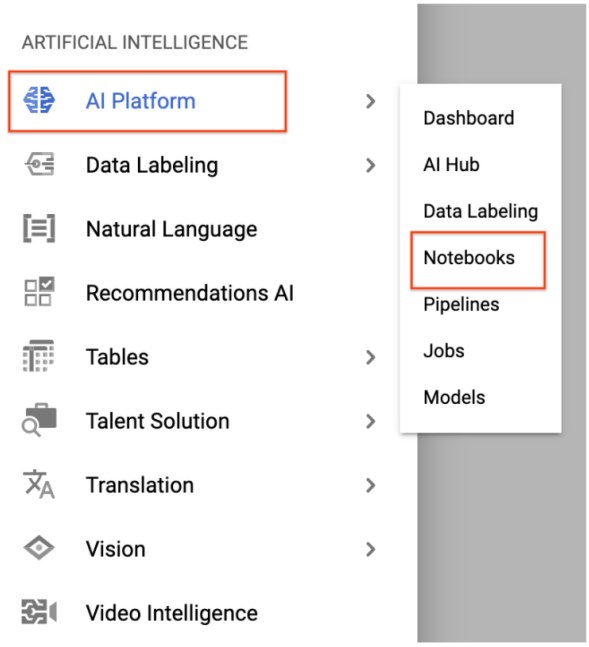
> Do not click **End Lab** unless you are finished with the lab or want to restart it. This clears your work and removes the project.

Launch AI Platform Notebooks

To launch AI Platform Notebooks:

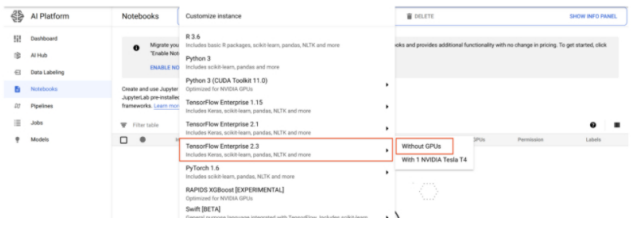
Step 1

Click on the **Navigation Menu**. Navigate to **AI Platform**, then to **Notebooks**.

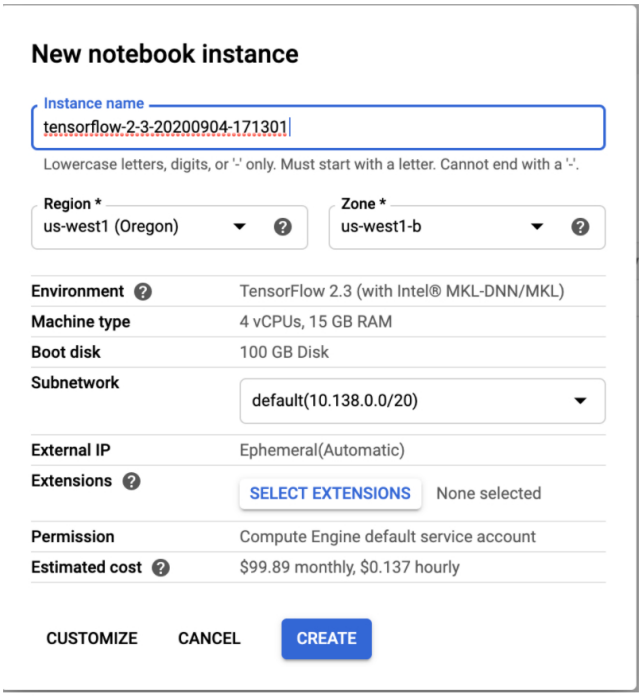


Step 2

On the Notebook instances page, click + NEW INSTANCE . Select the latest version of TensorFlow Enterprise `2.x` *Without GPUs*.



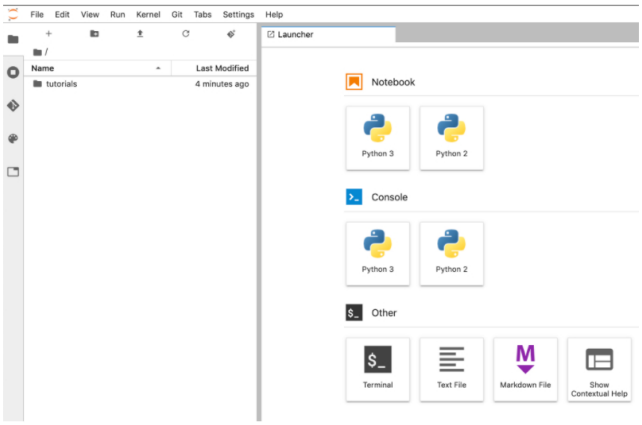
In the pop-up, confirm the name of the deep learning VM, move to the bottom of the window and click **Create**.



The new VM will take 2-3 minutes to start.

Step 3

Click **Open JupyterLab**. A JupyterLab window will open in a new tab.

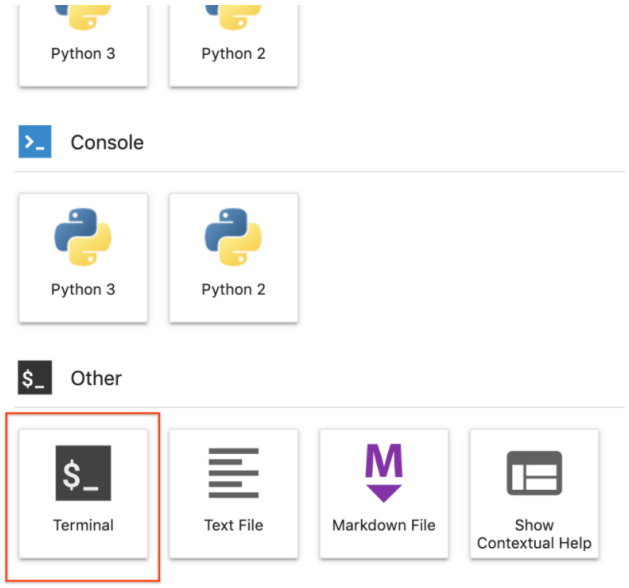


Clone course repo within your AI Platform Notebooks instance

To clone the `training-data-analyst` notebook in your JupyterLab instance:

Step 1

In JupyterLab, click the **Terminal** icon to open a new terminal.



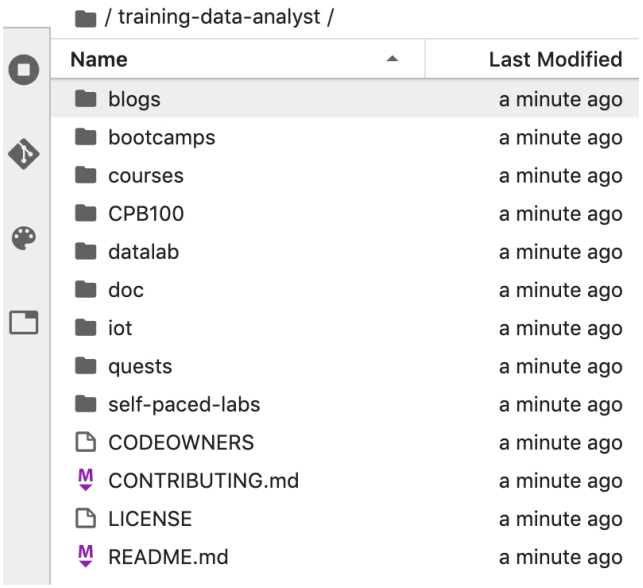
Step 2

At the command-line prompt, type in the following command and press **Enter**.

```
git clone https://github.com/GoogleCloudPlatform/training-data-analyst
```

Step 3

Confirm that you have cloned the repository by double clicking on the `training-data-analyst` directory and ensuring that you can see its contents. The files for all the Jupyter notebook-based labs throughout this course are available in this directory.



Keras Functional API

Duration is 45 min

Step 1

In the notebook interface, navigate to **training-data-analyst > courses > machine_learning > deepdive2 > introduction_to_tensorflow > Labs** and open **4_keras_functional_api.ipynb**.

Step 2

Step 2

In the notebook interface, click on Edit > Clear All Outputs (click on Edit, then in the drop-down menu, select Clear All Outputs).

Carefully read through the notebook instructions and fill in lines marked with #TODO where you need to complete the code as needed

Tip: To run the current cell you can click the cell and hit shift+enter. Other cell commands are found in the notebook UI under Run.

- Hints may also be provided for the tasks to guide you along. Highlight the text to read the hints (they are in white text).
- If you need more help, you may take a look at the complete solution by navigating to **training-data-analyst > courses > machine_learning > deepdive2 > introduction_to_tensorflow > solutions** and open **4_keras_functional_api.ipynb**.

End your lab

When you have completed your lab, click **End Lab**. Qwiklabs removes the resources you've used and cleans the account for you.

You will be given an opportunity to rate the lab experience. Select the applicable number of stars, type a comment, and then click **Submit**.

The number of stars indicates the following:

- 1 star = Very dissatisfied
- 2 stars = Dissatisfied
- 3 stars = Neutral
- 4 stars = Satisfied
- 5 stars = Very satisfied

You can close the dialog box if you don't want to provide feedback.

For feedback, suggestions, or corrections, please use the **Support** tab.