AI Platform: Qwik Start

Overview

This lab will give you hands-on practice with TensorFlow 2.x model training, both locally and on AI Platform. After training, you will learn how to deploy your model to AI Platform for serving (prediction). You'll train your model to predict income category of a person using the United States Census Income Dataset.

This lab gives you an introductory, end-to-end experience of training and prediction on AI Platform. The lab will use a census dataset to:

- Create a TensorFlow 2.x training application and validate it locally.
- Run your training job on a single worker instance in the cloud.
- Deploy a model to support prediction.
- Request an online prediction and see the response.

What you will build

The sample builds a classification model for predicting income category based on United States Census Income Dataset. The two income categories (also known as labels) are:

- **>50K** — Greater than 50,000 dollars
- **<=50K** — Less than or equal to 50,000 dollars

The sample defines the model using the Keras Sequential API. The sample defines the data transformations particular to the census dataset, then assigns these (potentially) transformed features to either the DNN or the linear portion of the model.

Launch Vertex Workbench Notebook

To launch Notebooks with Vertex AI:

1. Click on the **Navigation Menu** and navigate to **Vertex AI**, then to **Workbench**.
2. On the Notebook instances page, click **New Notebook**.
3. In the **Customize instance** menu, select **TensorFlow Enterprise** and choose the latest version of **TensorFlow Enterprise 2.x (with LTS)** > **Without GPUs**.
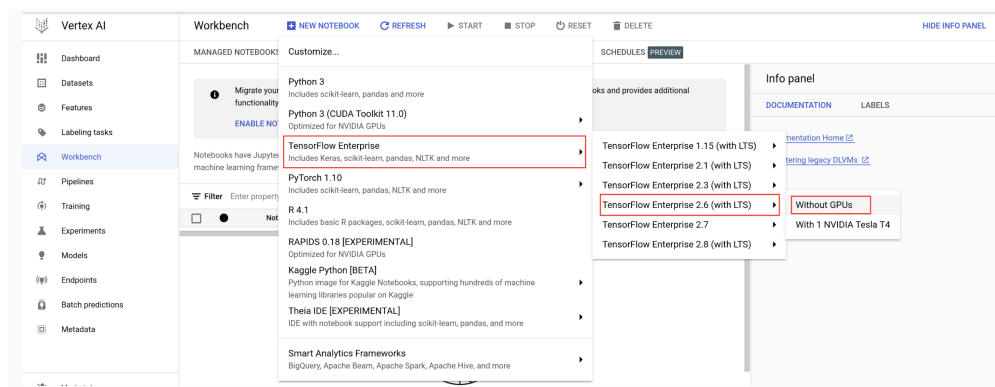
4. In the **New notebook instance** dialog, click the pencil icon to **Edit** instance properties.
5. For **Instance name**, enter a name for your instance.
6. For **Region**, select `us-central1` and for **Zone**, select a zone within the selected region.
7. Scroll down to Machine configuration and select **n1-standard-2** for Machine type.
8. Leave the remaining fields with their default and click **Create**.

After a few minutes, the Vertex AI console will display your instance name, followed by **Open JupyterLab**.

9. Click **Open JupyterLab**. A JupyterLab window will open in a new tab.
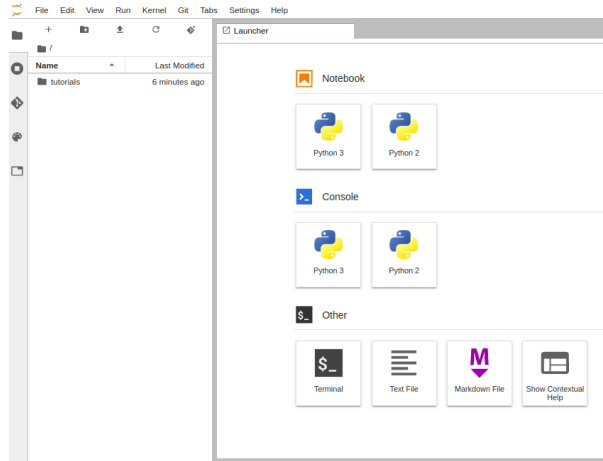
Clone the example repo within your Vertex Notebook instance

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

1. In JupyterLab, click the **Terminal** icon to open a new terminal.
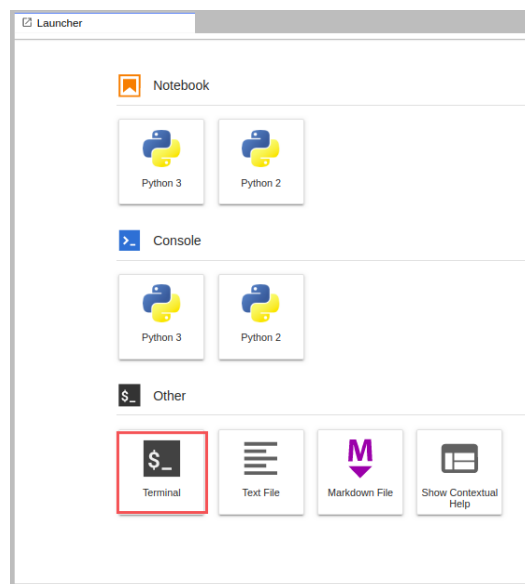
2. At the command-line prompt, type in the following command and press Enter.

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

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.
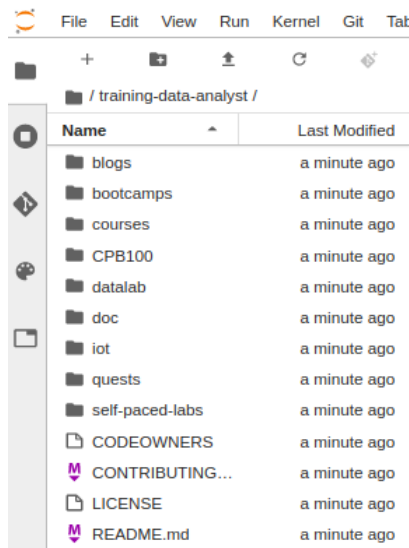
Navigate to the example notebook

In your **Notebook**, navigate to
`training-data-analyst/self-paced-labs/ai-platform-qwikstart` and open
`ai_platform_qwik_start.ipynb`.

Clear all the cells in the notebook (on the notebook toolbar, navigate to **Edit** > **Clear All
Outputs**) and then Run the cells one by one.

Run your training job in the cloud

- Test Completed Tasks - Step 3.1
  - Set up a Cloud Storage bucket.

- Upload the data files to your Cloud Storage bucket.

● Test Completed Tasks - Step 3.2

- Run a single-instance trainer in the cloud.

● Test Completed Tasks - Step 3.3

- Create an AI Platform model.
- Create a version v1 of your model.

Congratulations!

In this lab you've learned how to train a TensorFlow model both locally and on AI Platform, and then how to use your trained model for prediction.