[ML on GCP C9] Text Classification using TensorFlow/Keras on Cloud ML Engine

2 hours Free Rate Lab

Overview

Duration is 1 min

In this lab, you will define a text classification model to look at the titles of articles and figure out whether the article came from the New York Times, TechCrunch or GitHub.

What you learn

In this lab, you will learn how to:

- Creating datasets for Machine Learning using BigQuery
- Creating a text classification model using the Estimator API with a Keras model
- Training on Cloud ML Engine
- Deploying the model
- Predicting with model
- Rerun with pre-trained embedding

Setup

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

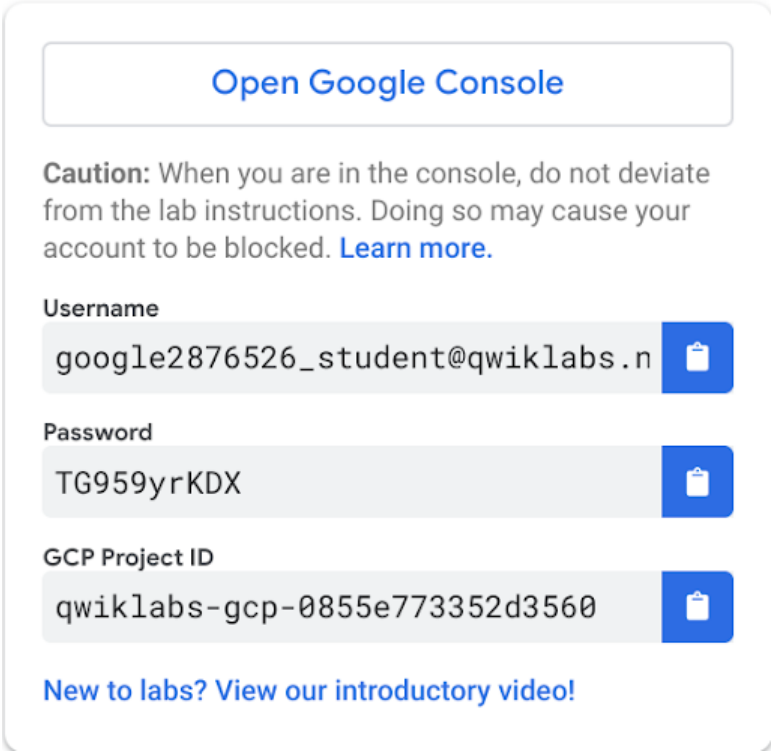
1. Make sure you signed into Qwiklabs using an **incognito window**.

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 Cloud Platform 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.

Create Storage Bucket

Duration is 2 min

Create a bucket using the GCP console:

Step 1

In your GCP Console, click on the **Navigation menu** (), and

select **Storage**.

Step 2

Click on **Create bucket**.

Step 3

Choose a Regional bucket and set a unique name (use your project ID because it is unique). Then, click **Create**.

Launch Cloud Datalab

To launch Cloud Datalab:

Step 1

Open Cloud Shell. The Cloud Shell icon is at the top right of the Google Cloud Platform web console.

Step 2

In Cloud Shell, type:

```
gcloud compute zones list
```

> **Note**: Please pick a zone in a geographically close region from the following: **us-east1, us-central1, asia-east1, europe-west1**. These are the regions that currently support Cloud ML Engine jobs. Please verify heresince this list may have changed after this lab was last updated. For example, if you are in the US, you may choose **us-east1-c** as your zone.

Step 3

In Cloud Shell, type:

```
datalab create mydatalabvm --
zone <ZONE>
```

Replace with a zone name you picked from the previous step.

Note: follow the prompts during this process.

Datalab will take about 5 minutes to start.

Step 4

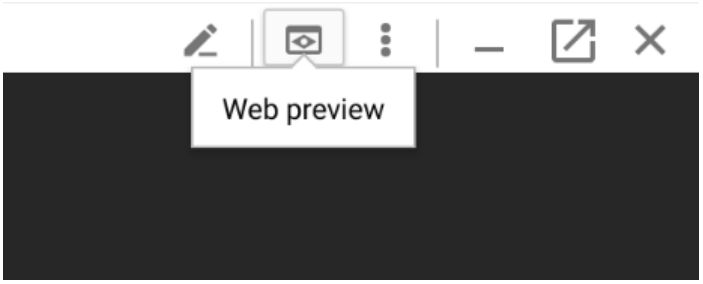
Look back at Cloud Shell and follow any prompts. If asked for an ssh passphrase, hit return (for no passphrase).

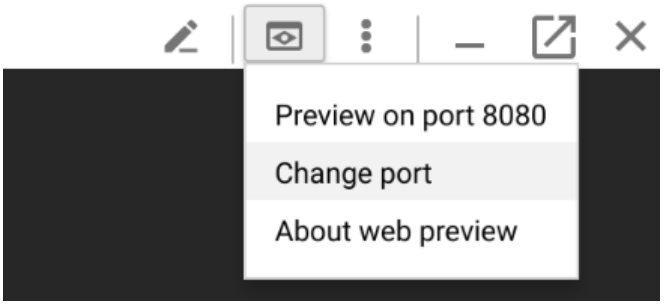
Step 5

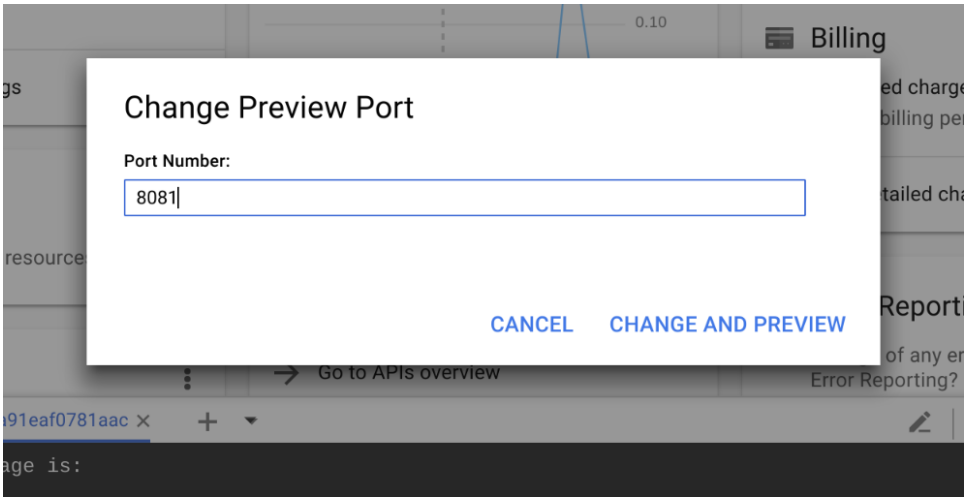
If necessary, wait for Datalab to finishing launching. Datalab is ready when you see a message prompting you to do a **Web Preview**.

Step 6

Click on **Web Preview** icon on the top-right corner of the Cloud Shell ribbon.
Click **Change Port** and enter the port **8081** and click **Change and Preview**.







Note: If the cloud shell used for running the datalab command is closed or interrupted, the connection to your Cloud Datalab VM will terminate. If that happens, you may be able to reconnect using the command **datalab connect mydatalabvm** in your new Cloud Shell.

Clone course repo within your Datalab instance

To clone the course repo in your datalab instance:

Step 1

In Cloud Datalab home page (browser), navigate into **notebooks** and add a new notebook using the icon Notebook on the top left.

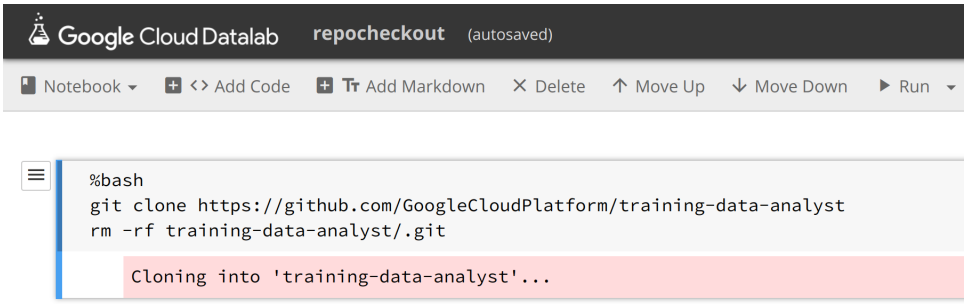
Step 2

Rename this notebook as **repocheckout**.

Step 3

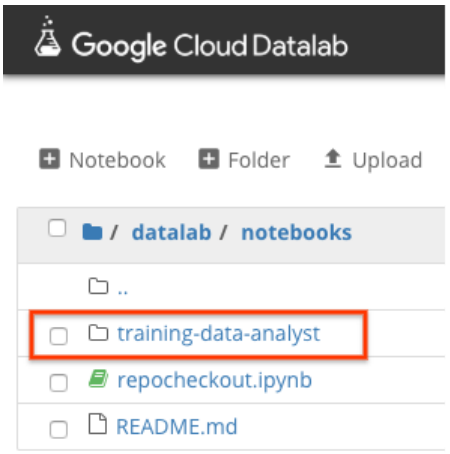
In the new notebook, enter the following commands in the cell, and click on **Run** (on the top navigation bar) to run the commands:

```
%bash
git clone
https://github.com/GoogleCloudPlat
data-analyst
rm -rf training-data-
analyst/.git
```



Step 4

Confirm that you have cloned the repo by going back to Datalab browser, and ensure you see the **training-data-analyst** directory. All the files for all labs throughout this course are available in this directory.



Building a Sequence Model for Text Classification

Duration is 15 min

The model code is packaged as a separate python module. You will first complete the model code and then switch to the notebook to set some parameters and run the training job.

Step 1

In Cloud Datalab, click on the Home icon, and then navigate to **datalab > notebooks > training-data-analyst > courses > machine_learning > deepdive > 09_sequence > labs** and open **text_classification.ipynb**.

> Note: If the cloud shell used for running the datalab command is closed or interrupted, the connection to your Cloud Datalab VM will terminate. If that

happens, you may be able to reconnect using the command '**datalab connect mydatalabvm**' in your new Cloud Shell. Once connected, try the above step again.

Step 2

Read through the assignment steps required in the first notebook cell and complete them in your notebook.

Be sure to complete the *#TODO*s in the companion model.py notebook found in **datalab > notebooks > training-data-analyst > courses > machine_learning > deepdive > 09_sequence > labs > txtclsmodel > trainer > model.py**.

Note: Save your changes with `Ctrl+S` / `Cmd+S` for **model.py**.

If you need more help, you may take a look at the complete solution by navigating **datalab > notebooks > training-data-analyst > courses > machine_learning > deepdive > 09_sequence > txtclsmodel > trainer > model.py**.

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.

Last Tested Date: 03-15-2019

Last Updated Date: 03-15-2019