IT718 - Google Cloud Platform Lab

Objectives

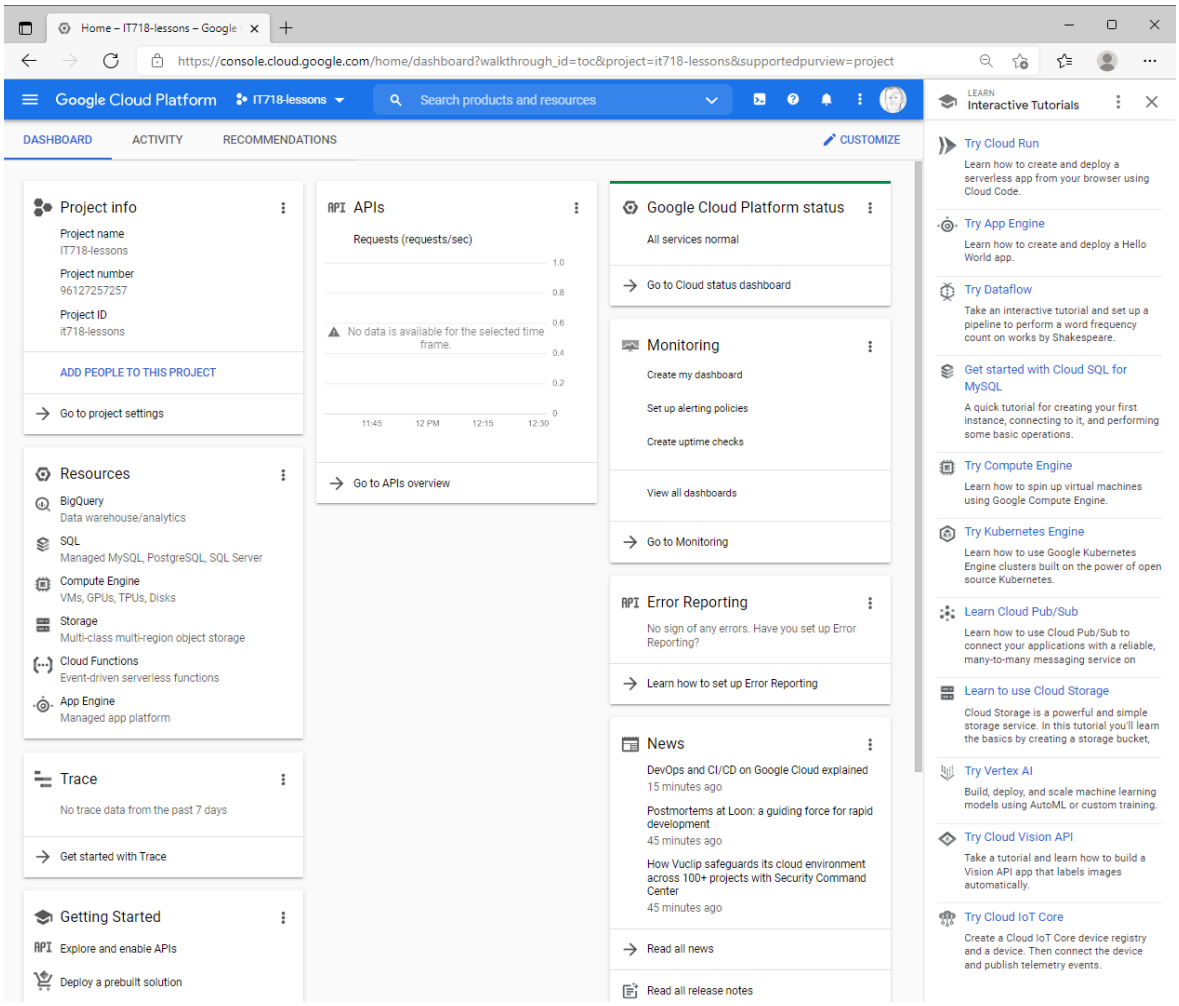
The purpose of this lab is to introduce you to basic services on the Google Cloud Platform.

Here is the URL you will need to access in order to request a Google Cloud coupon. You will be asked to provide your school email address and name. An email will be sent to you to confirm these details before a coupon is sent to you.

Student Coupon Retrieval Link

- You will be asked for a name and email address, which needs to match your school domain. A confirmation email will be sent to you with a coupon code.
- You can request a coupon from the URL and redeem it until: 5/23/2023
- Coupon valid through: 1/23/2024
- You can only request ONE code per unique email address.

The labs should not incur any expense. I have in past years experimented with Kubernetes and auto-scaling that have incurred a few dollars in expense. The coupon will allow to you to experiment beyond the lab.



Task: Complete the "Help" -> "Start a Tutorial"

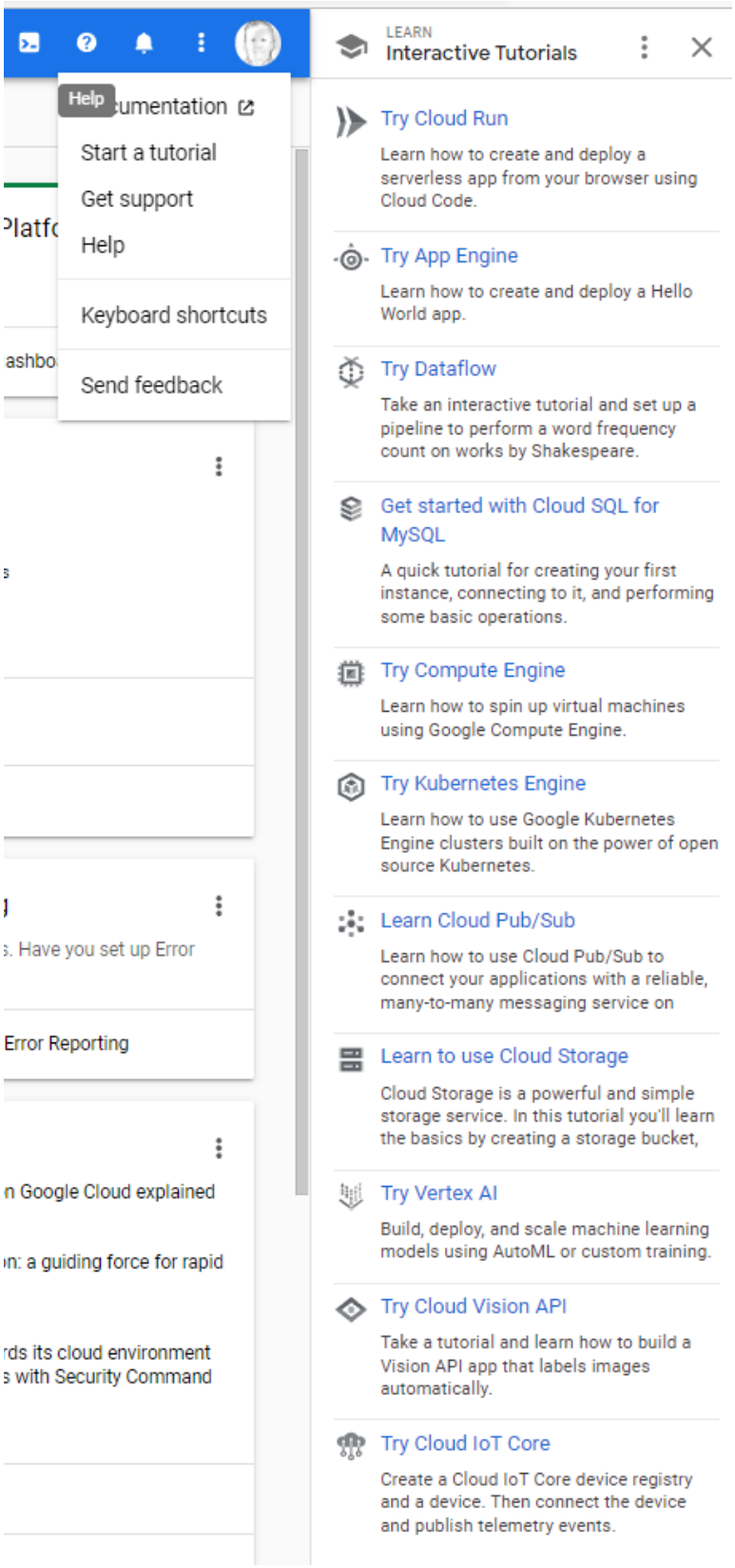
Login on to the GCP Console. On the main header, click the Support icon then "Start a tutorial"

You will see a series of interactive tutorials. If you take your time to read and understand what is going on, each tutorial will take 10-30 minutes. Some offer to the choice of which language you want to use. Pick the language you prefer.

For the lab report you do not need to capture every step. A single screenshot showing success is enough. Generally, this will be the third to last step, Cleanup and Conclusion are the last steps in each tutorial.

Tutorial Clean-up: If resources are created in the tutorial be sure to follow the cleanup steps provided. No need to have unused resources laying around. The tutorials make use of the interactive Cloud Shell.

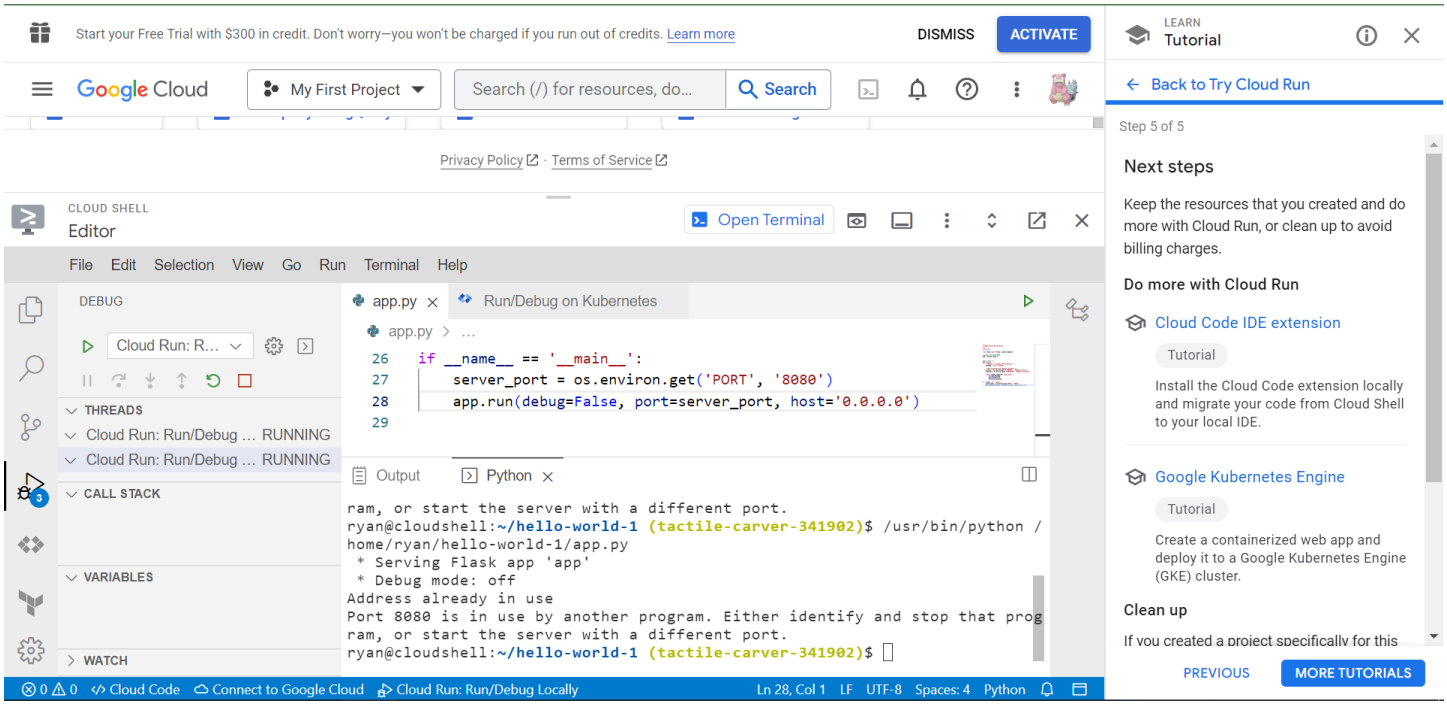
NOTE: The "Try Vertex API" tutorials and "Try Cloud Vision API" omitted from this lab. You are encouraged to try them if you have an interest in machine learning but the tutorials do have hour deployment lags and can occur costs.

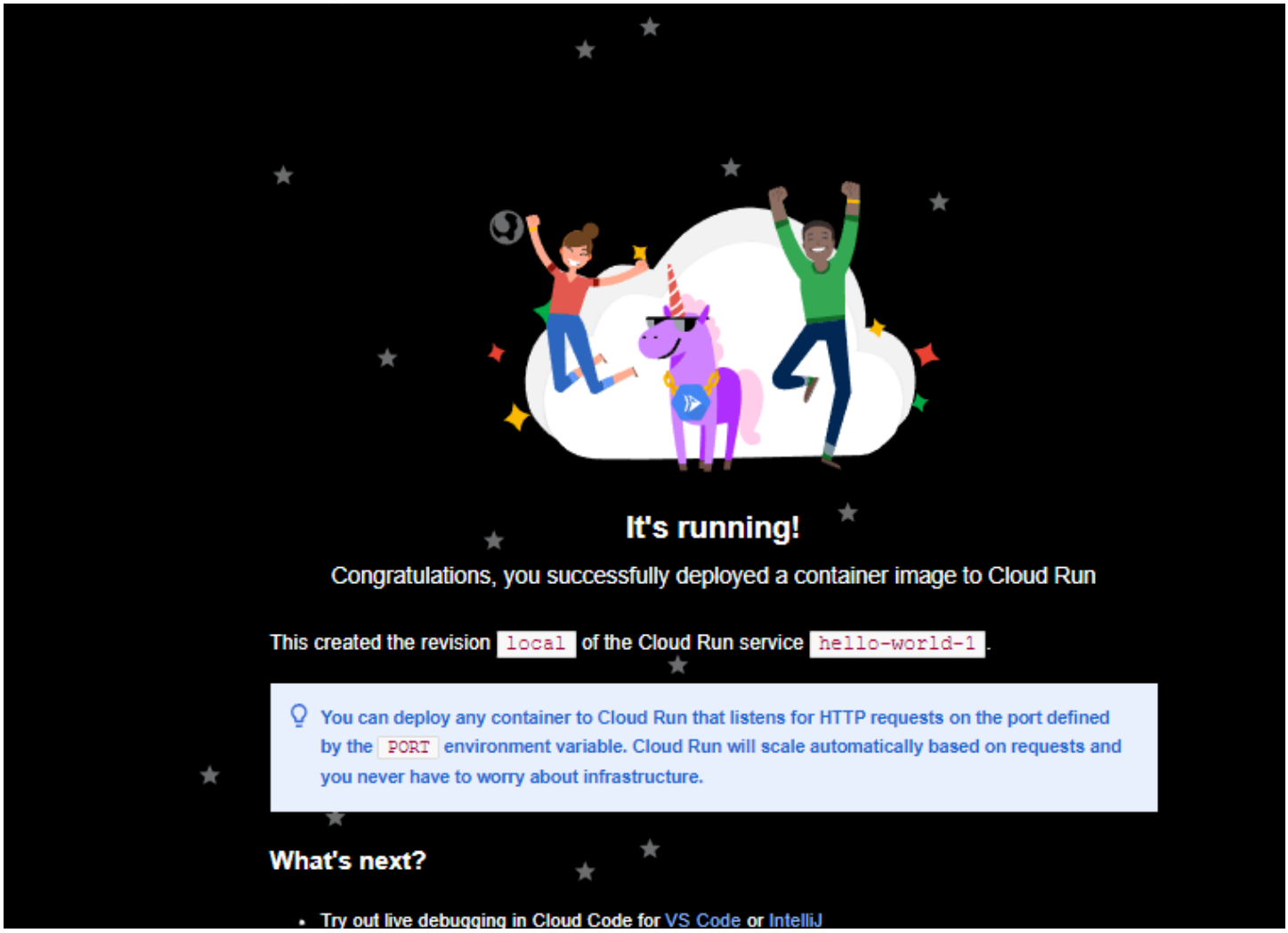


Your lab report should replace all of the following example screenshots

Task 1: "Try Cloud Run"

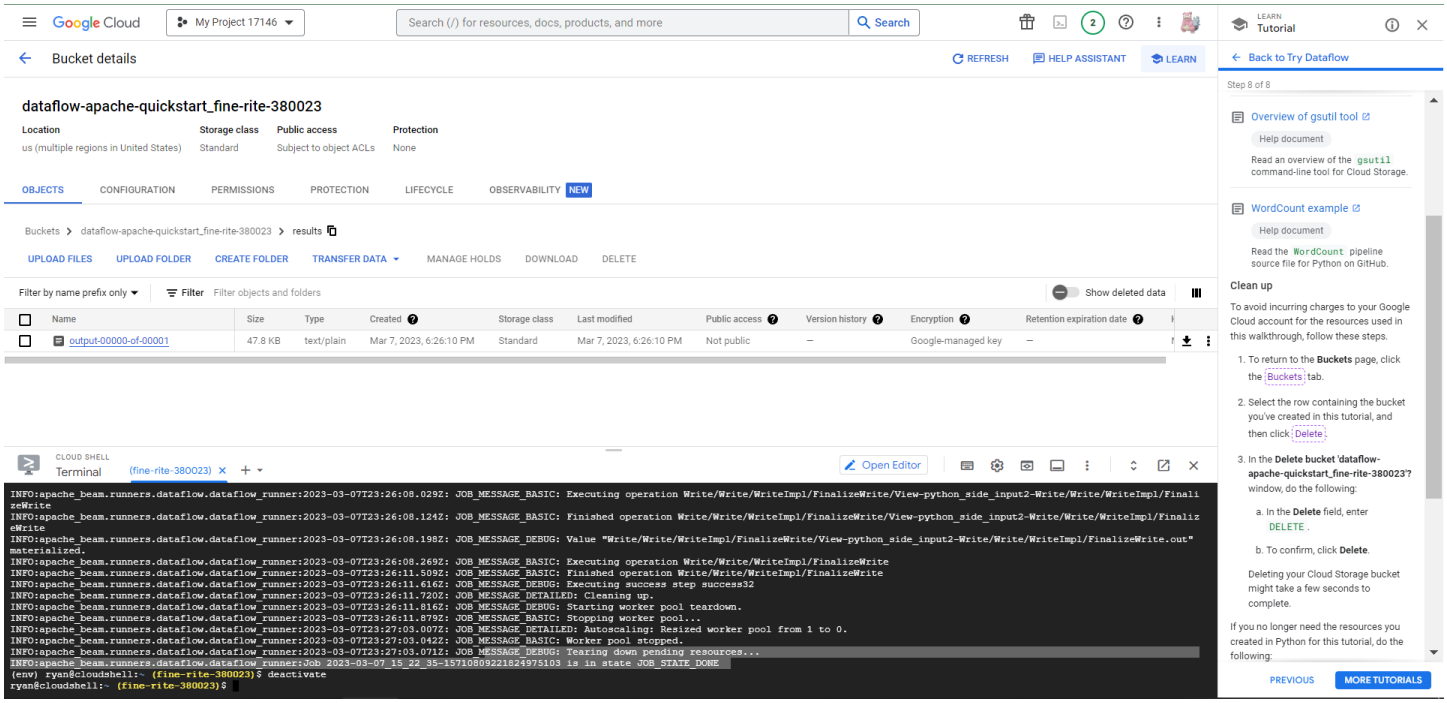
Lab report: (10 points) Screen shot showing your Cloud Run view log (Sample below)





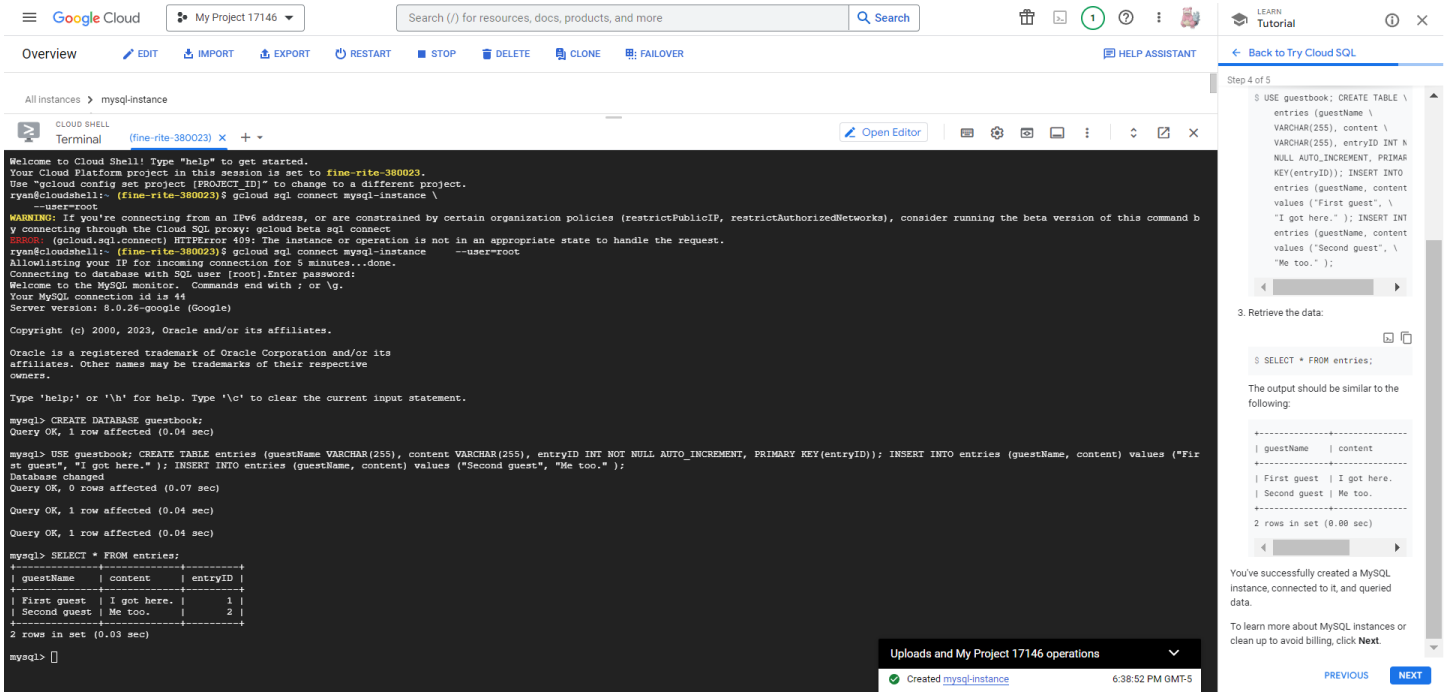
Task 2: Try Dataflow

Lab report: (10 points) Screenshot of your Cloud Shell showing "JOB_STATE_DONE"



Task 3: Try Cloud SQL

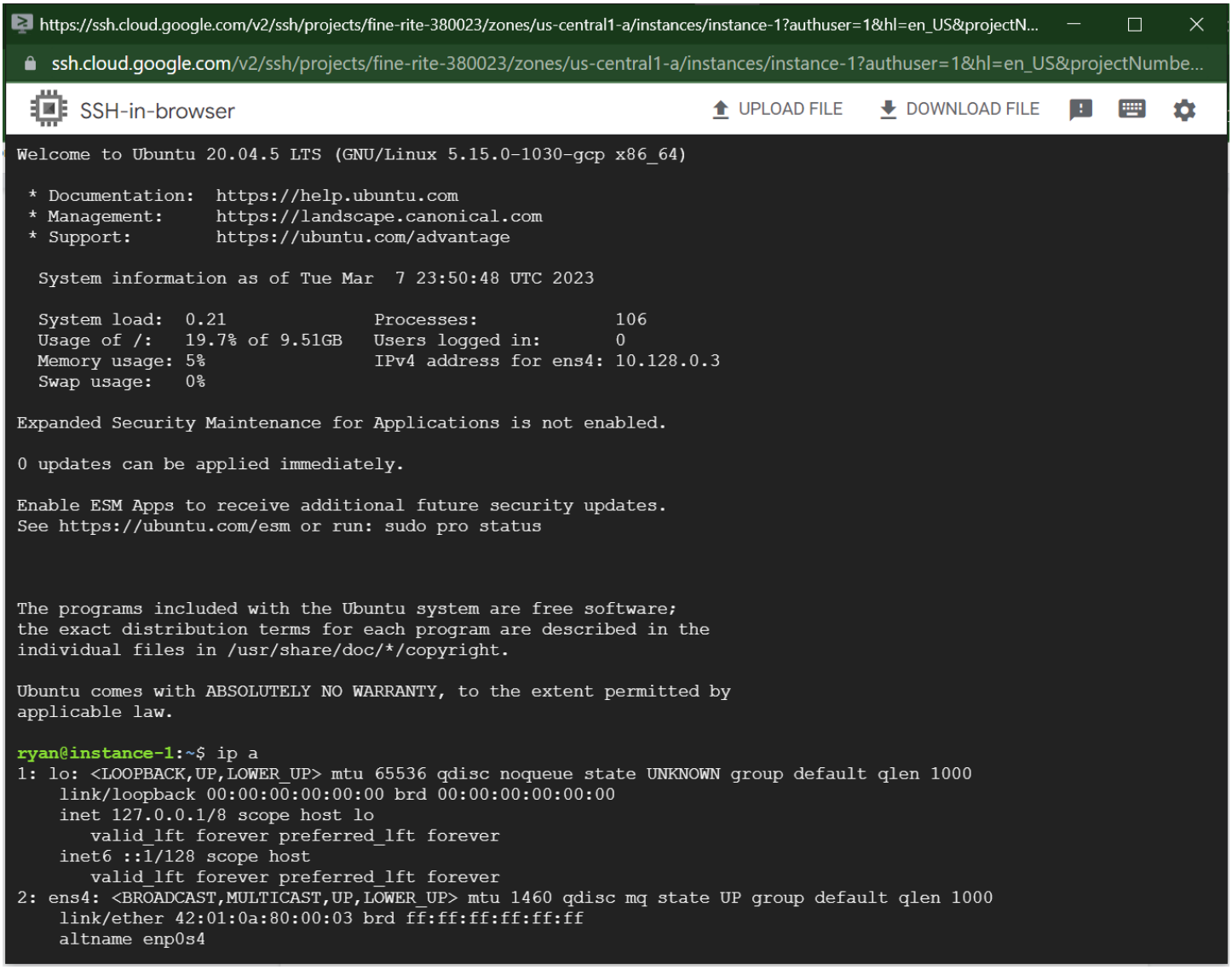
Lab report: (10 points) Screenshot of Cloud Shell showing SQL commands



Task 4: Try Compute Engine

The tutorial allows you create either a Linux or Windows VM. Pick either one for the lab. Although completing both is highly recommended if you are new to GCP.

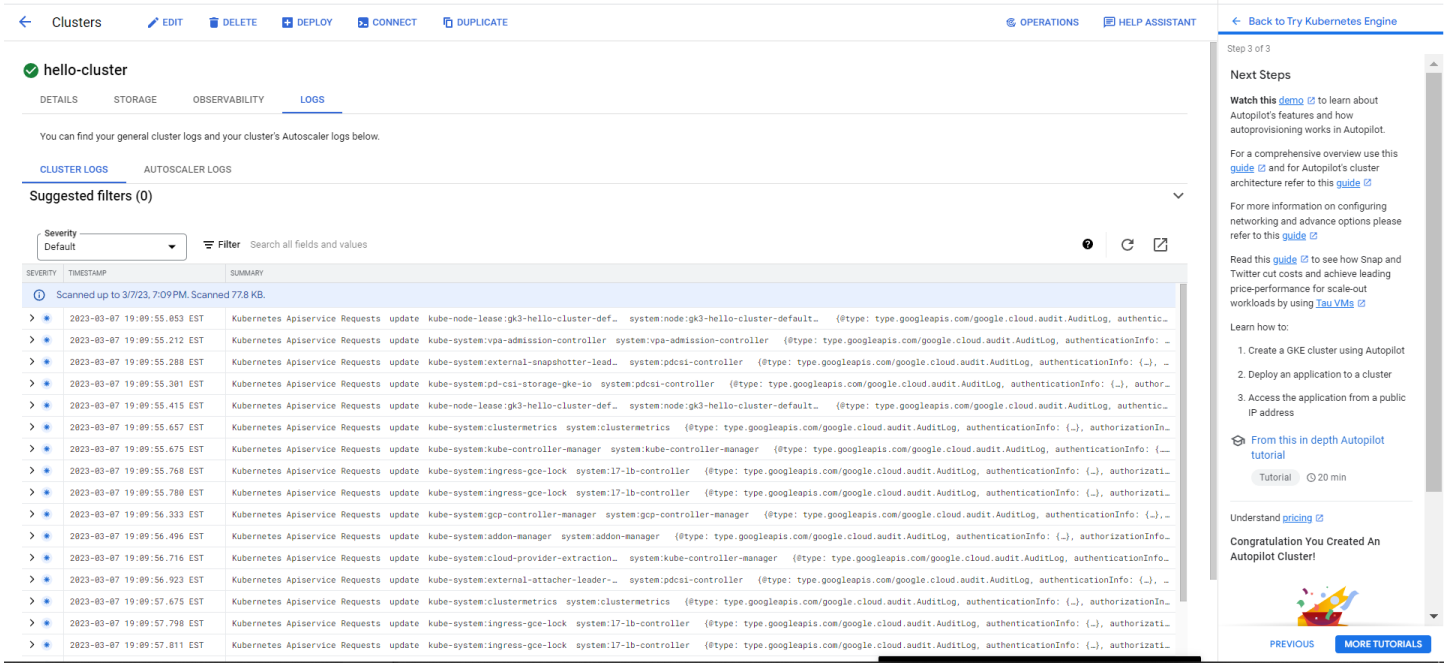
Lab report: (10 points) Screenshot showing running instance



Task 5: Try Kubernetes Engine

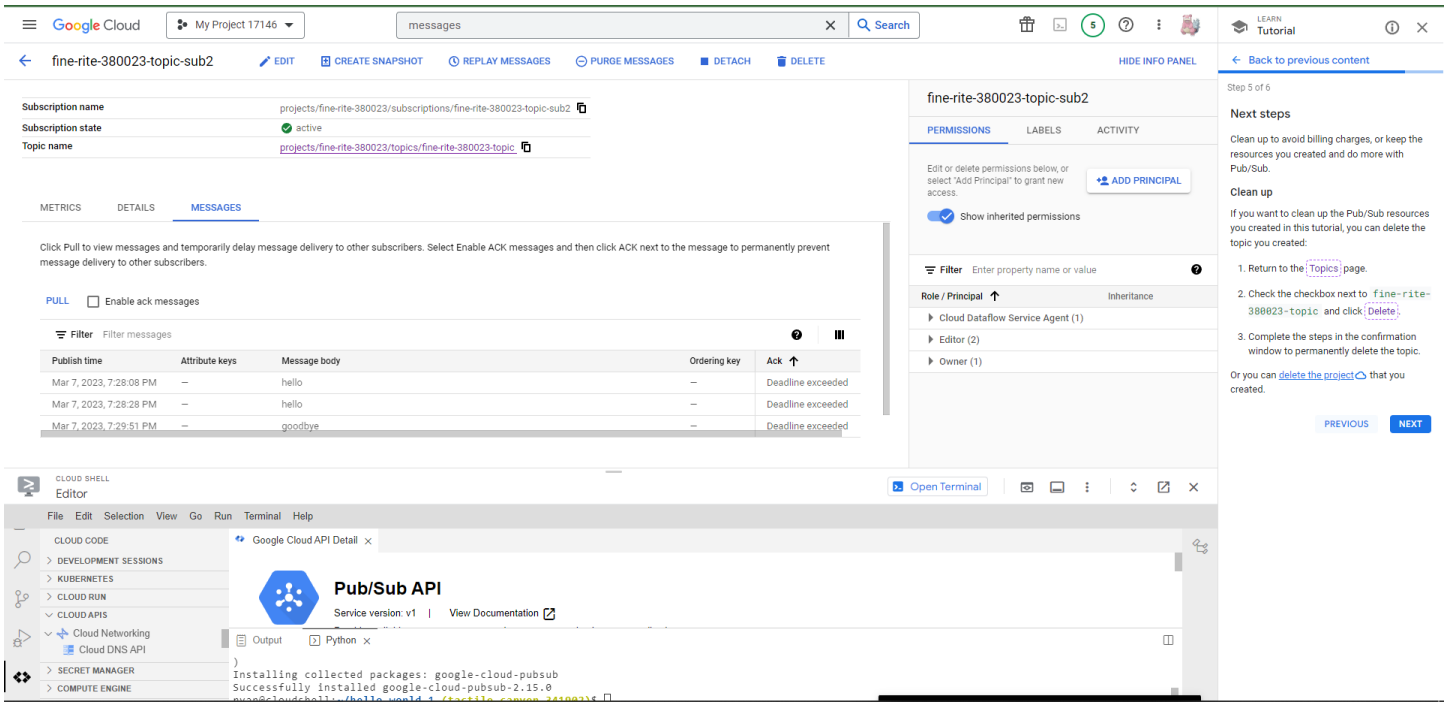
FYI: We will use "Build a guestbook on Kubernetes Engines" later in the semester.

Lab report: (10 points) Screenshot of Cloud Shell showing service is running



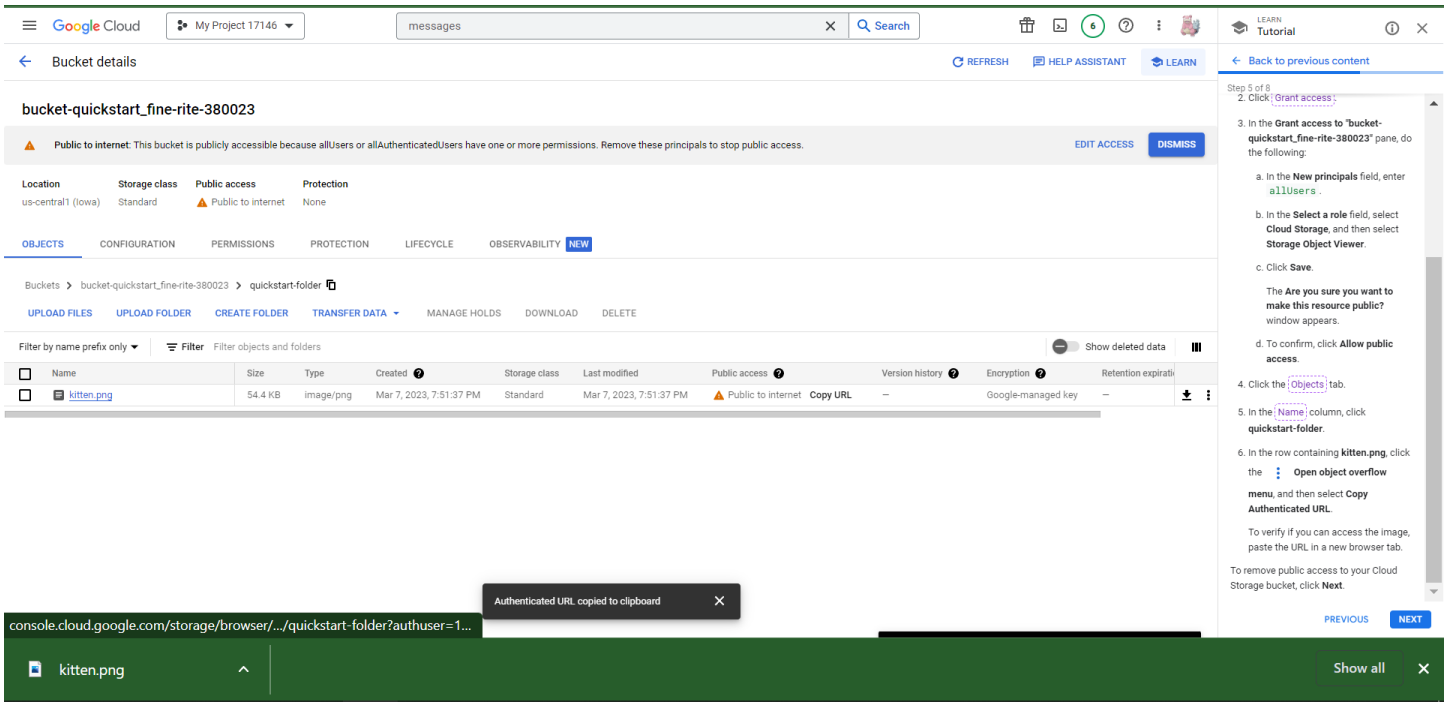
Task 6: Learn Cloud Pub/Sub

Lab report: (10 points) Screenshot of Cloud Shell showing messaging



Task 7: Learn to use Cloud Storage

Lab report: (10 points) Screenshot of bucket information after file upload



Task 8/9: Collaborative Realtime Mapping with Firebase

Lab Report: (20 points) Provide the URL of your customized Google maps application

Google provides complete tutorials on how to use their Maps JavaScript API. For this task follow this tutorial: https://developers.google.com/maps/documentation/javascript/firebase

If you are new to Google Maps API, you will want to start here.

A live example from the UNH Gencyber summer camp can be found here. There are NH, US, and WORLD editions of this app. The source code is on Github here.

Your implementation should set its own location, zoom, and map features.

WARNING: Be sure to limit the use of your API key to your map application domain. Setting a wider more general use will allow others to use you API key in their application and potentially incurring expense for you.

Task 10: Show Billing Dashboard

Lab Report: (10 points) Replace this screenshot with your billing dashboard

https://console.cloud.google.com/billing

Note: My spend will be different than yours as I spent time experimenting with services not part of this lab. Assuming you had no existing deployments, your on-going daily spend should be zero when you are done with this lab.