Visualize the 10,000 Bitcoin Pizza Transaction Using BigQuery and AI Notebooks

GSP604

Google Cloud Self-Paced Labs

Introduction

This lab digs into the fates of the bitcoin transactions tied to the infamous 10,000 bitcoin pizza purchase.
This code is based on code originally written by Allen Day and modified by Sohien Dane and Meg Risdal from these Kaggle kernels (parts 1, 2, 3). You use it to visualize a directed graph representing Bitcoin transactions that follow the first known exchange of Bitcoin for goods on May 17, 2010 made by Laszlo Hanyecz.
In this lab, you use an **AI Platform Notebook instance** to:

1. Retrieve as many transactions as possible from **BigQuery** within 2 degrees of separation from the pizza exchange.

2. Post-process the transactions to remove excess transactions from step 1 because the query was overly-greedy to ensure the number of table scans equals the degrees of separation.

3. Visualize the directed graph.

Setup

Before you click the Start Lab button

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

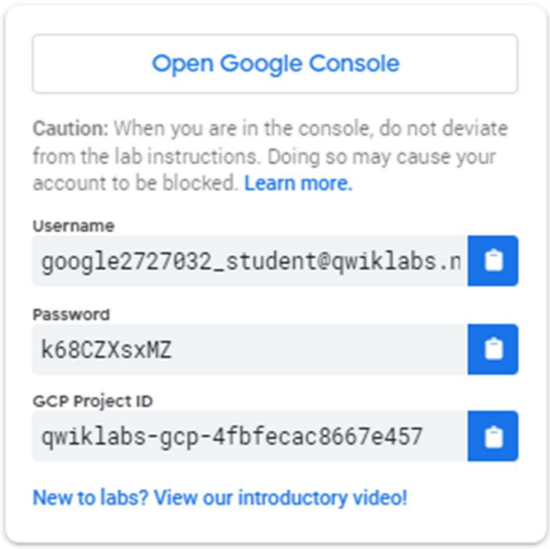
To complete this lab, you need:

- 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.

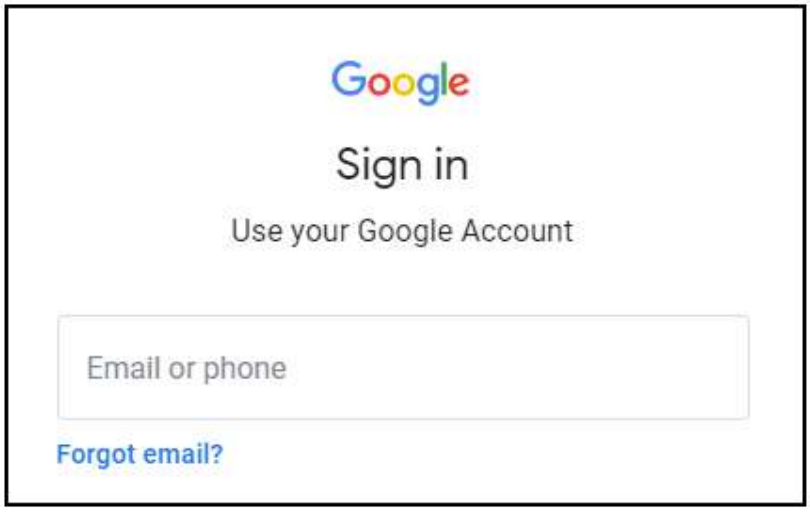
Note: If you are using a Pixelbook, open an Incognito window to run this lab.

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

1. Click the **Start Lab** button. If you need to pay for the lab, a pop-up opens for you to select your payment method. On the left is a panel populated with the temporary credentials that you must use for this lab.

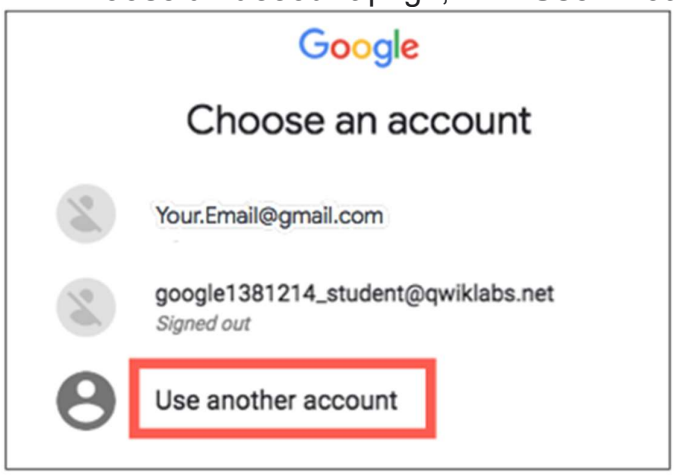


2. Copy the username, and then click **Open Google Console**. The lab spins up resources, and then opens another tab that shows the **Sign in** page.



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.

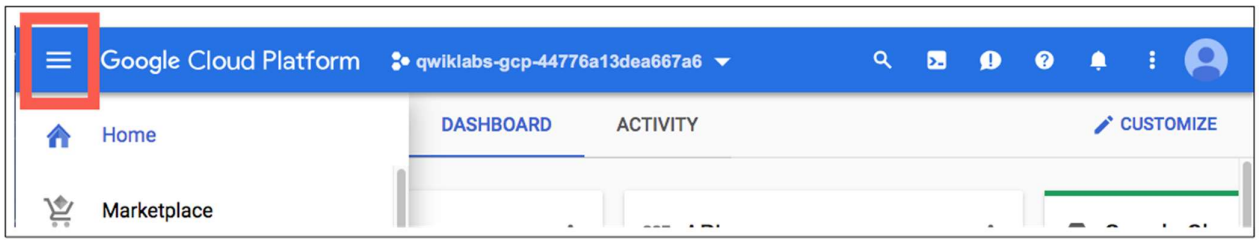
   Important: You must use the credentials from the Connection Details panel. Do not use your Qwiklabs credentials. If you have your own Google Cloud account, do not use it for this lab (avoids incurring charges).

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.



Create the Notebook instance

1. In search (at the top of the console page), type `notebooks` and click **Notebooks AI Platform**.
2. Click **+ NEW INSTANCE**.
3. Select **Python 3**.
4. Click **CREATE**.

Wait for the Notebook instance to start, this takes a few minutes.

Click *Check my progress* to verify the objective.

Create the Notebook instance

Check my progress

Load the notebook

1. Click **OPEN JUPYTERLAB**.

2. Under *Other*, click **Terminal**.

3. Use the following command to clone a notebook with notes and all the necessary commands to complete the lab.

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

Wait for the cloning to complete.

4. Open **training-data-analyst** > **blogs** > **bitcoin_network** > **visualizing_the_10000_pizza_bitcoin_network**.

You now have the notebook loaded.

5. Read through the notebook and execute the code to perform the data extraction, cleanup, and visualization.

Click *Check my progress* to verify the objective.

Load the notebook

Check my progress

Congratulations!

You have seen how you can deploy Jupyterlab notebooks in Google Cloud and retrieve BigQuery data from within a notebook.

Manual Last Updated February 8, 2021
Lab Last Tested February 8, 2021