QLabs Overview

BA770 Lab Session

Questrom School of Business, Boston University

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QLabs Overview

- You may follow the bullet points in this slides to review a QLab after you complete it.
- Key takeaways are marked with an asterisk before index.

Lecture1, QLabA
A Tour of Qwiklabs and the Google Cloud Platform

a) Gain an overall understanding of Qwiklabs platform and identify key features of a lab environment.

b) Access the GCP console with (temporary) specific credentials.

⋆ c) Know the definition of GCP projects.

⋆ d) Use the GCP navigation menu to identify types of GCP services.

e) Learn about primitive roles and use the Cloud IAM service to inspect actions available to specific users.

⋆ f) Learn basic Cloud Shell commands; run commands like touch, nano, and cat to create, edit, and output the content of files.

g) Learn about the API library and examine its chief features.

Lecture1, QLabA, Tips

a) Make sure you're using the temporary account to log in!

b) If you find something wrong or you get stuck in a session, don't be nervous - end the current session and open a new one. Redoing a lab will not influence your QLab grades.

c) Be careful with all keyboard and/or mouse operations when you are on the lab page. Do not click the End Lab button until you have completed all the tasks.

d) Learn more about applications provided by GCP, including virtual machine, storage, database, etc.

Lecture1, QLabB
Getting Started with Cloud Shell & gcloud

a) Gain an understanding of Google Cloud Shell, including definition, function, feature, etc.

⋆ b) Be familiar with **cd** command and **vi** editor.

c) Use gcloud commands to view configurations.

⋆ d) Use gsutil commands to manage Cloud Storage resources; know how to create a bucket and copy an existing file to a bucket.

Lecture1, QLabB, Tips

a) Bucket names are universally unique, so avoid using names like 'my_bucket' 'test_bucket'; otherwise you may receive 'ServiceException: 409 Bucket xxx already exists'.

b) You may use '**Ctrl+C**' to exit the current command.

c) Find **vi** documentation here.

d) Refer to documentation (you could just google it) to know more about **gcloud** and **gsutil** commands.

Lecture1, QLabC*
Creating a Virtual Machine

⋆ a) Create a virtual machine with 1) the GCP Console, 2) **gcloud** command line.

b) Check existing instances in Navigation menu - Compute Engine - VM instances.

⋆ c) Access the virtual machine by 1) launching a SSH client directly from browser, or 2) SSH'ing into the instance using gcloud.

Lecture1, QLabC*, Tips

a) Be aware of the window you're typing in:
   - When you are SSH'ing into an instance with a prompt window, make sure you execute the commands in this window.
   - If you are using **gcloud** commands, make sure the commands are running in the Cloud Shell.

b) If you get root access to your instance by mistake, press '**Ctrl+D**' to exit root user.

c) Learn more about SSH here.

d) Learn more about **sudo** command here.

e) Learn more about commonly used commands in GCP here.

Lecture2, QLabD
Introduction to SQL for BigQuery and Cloud SQL

- ⋆ a) Understand the relationship among project, database, and table.
- ⋆ b) Get familiar with BigQuery console, e.g. loading databases and tables into BigQuery.
- ⋆ c) Use SELECT, FROM, WHERE, COUNT, GROUP BY, AS, and ORDER BY keywords to fetch meaningful data from datasets.
- d) Export query results to local repository and upload them to Cloud Storage bucket.
- e) Create a new Cloud SQL instance and load files from Cloud Storage bucket as new tables.
- ⋆ f) Know basic knowledge of keywords CREATE, DELETE, INSERT INTO, and UNION. Be able to run queries in Cloud SQL using Cloud Shell.

Lecture2, QLabD, Tips

a) Make sure you have switched to the temporary account, and you are under the temporary project. Double check from time to time.

b) Leave enough time for file importing, instance creation and connecting, etc. You are strongly advised to read all instructions before starting the lab.

c) In Query editor, you could press '**Ctrl+Enter**' instead of clicking '**run**'.

d) Remember to rename the two csv documents.

e) After you enter '**gcloud sql connect qwiklabs-demo –user=root**' in Cloud Shell and wait for a while, you will see '**Connecting to database with SQL user [root]. Enter password:**'. Be aware that there's no flash cursor when you are typing. Enter your password and press 'Enter'.

f) When you are running SQL queries using Cloud Shell Command Line, remember to end each query with a semicolon '**;**'.

g) When importing files to tables in SQL instance, click Browse, and then double click the bucket name to find your files.

Lecture2, QLabD, SQL Keywords/Functions Summary

- **SELECT**: Specify the fields you want to pull from the dataset.
- **FROM**: Specify what table or tables to pull data from.
- **GROUP BY**: Aggregate result-set rows that share common criteria and return all of the unique entries found for such criteria.
- **COUNT**: Return the number of rows that share the same criteria.
- **AS**: Create an alias of a table or column.
- **ORDER BY**: Sort the returned data from a query in ascending or descending order based on a specified criteria or column value.
- **CREATE**: Create new databases or tables.
- **DELETE**: Delete existing databases or tables.
- **INSERT INTO**: Insert values into tables.
- **UNION**: Combine the output of two or more queries into a result set.

Lecture2, QLabE*
Using BigQuery in the GCP Console

⋆ a) Query a public dataset using aggregation functions.

⋆ b) Create a dataset in your project and load the data into a table.

c) Query your own table using GROUP BY and ORDER BY keywords.

Lecture2, QLabE*, Tips

a) After you click '**VIEW DATASET**', make sure you are still using the temporary google account and under the temporary project.

b) '**CREATE DATASET**' button is in blue font, right under the green check mark icon if your Query editor is not hidden. '**CREATE TABLE**' button is in a similar place.