APIs Explorer: Cloud SQL

GSP423

Google Cloud Self-Paced Labs

Overview

The Google APIs Explorer is a tool that helps you explore various Google APIs interactively. With the APIs Explorer, you can:

- Browse quickly through available APIs and versions.
- See methods available for each API and what parameters they support along with inline documentation.
- Execute requests for any method and see responses in real time.
- Make authenticated and authorized API calls.
- Search across all services, methods, and your recent requests to quickly find what you are looking for.

Cloud SQL is a fully-managed database service that makes it easy to set up, maintain, manage, and administer your relational PostgreSQL and MySQL databases in the cloud. Cloud SQL offers high performance, scalability, and convenience. Hosted on Google Cloud, Cloud SQL provides a database infrastructure for applications running anywhere. In this lab you will build a Cloud SQL instance and attach a MySQL database to it. After creating a sample CSV file and uploading it to Cloud Storage, you will create a table and pull the file's contents into your MySQL database. Finally, you will remove the database and it's associated data. You will accomplish these tasks with the Cloud SQL Admin API, where you will call various methods through the APIs Explorer tool.

Objectives

In this lab, you will use the APIs Explorer tool to:

- Build a Cloud SQL instance.
- Configure a MySQL SQL database and attach it to a Cloud SQL instance.
- Pull CSV data from a Cloud Storage bucket and upload it to a MySQL database table.
- Delete a MySQL database.

Prerequisites

This is a **fundamental level** lab. You should be familiar with the basic functioning and architecture of APIs. Experience with Google Cloud Shell and command line interface tools is recommended.

Familiarity with the the APIs Explorer tool is also recommended. At a minimum, take the following labs before attempting this one:

- Introduction to APIs in Google
- APIs Explorer: Qwik Start

If you are unfamiliar with Cloud SQL, the labs Cloud SQL for MySQL: Qwik Start and Introduction to SQL for BigQuery and Cloud SQL have valuable information that will orient you with the content of this lab. Once you're ready, scroll down and follow the steps below to get your lab environment set up.

Setup and Requirements

Qwiklabs 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:

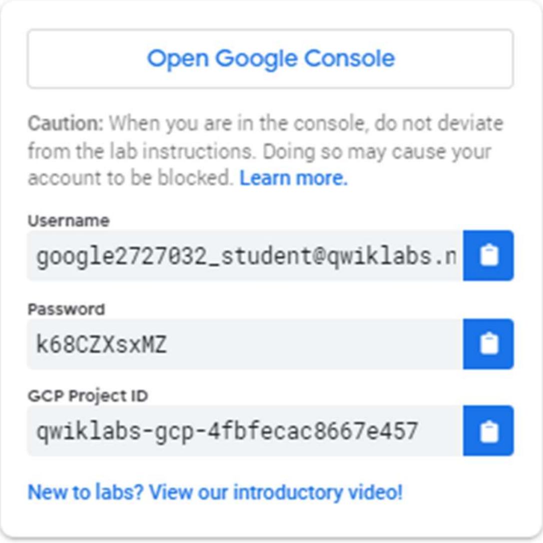
- Access to a standard internet browser (Chrome browser recommended).
- Time to complete the lab.
  Note: If you already have your own personal Google Cloud account or project, do not use it for this lab.

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

Cloud Console

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.



Open Google Console

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.

Username

google2727032_student@qwiklabs.n

Password

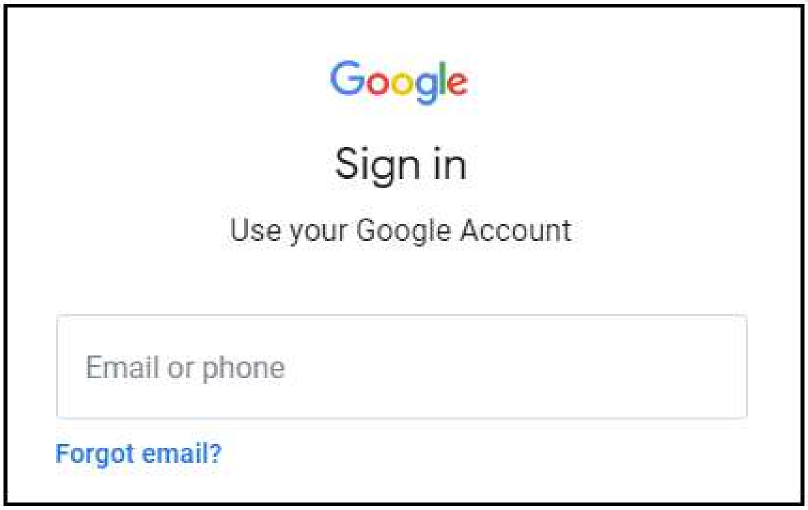
k68CZXsxMZ

GCP Project ID

qwiklabs-gcp-4fbfecac8667e457

New to labs? View our introductory video!

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.



Google

Sign in

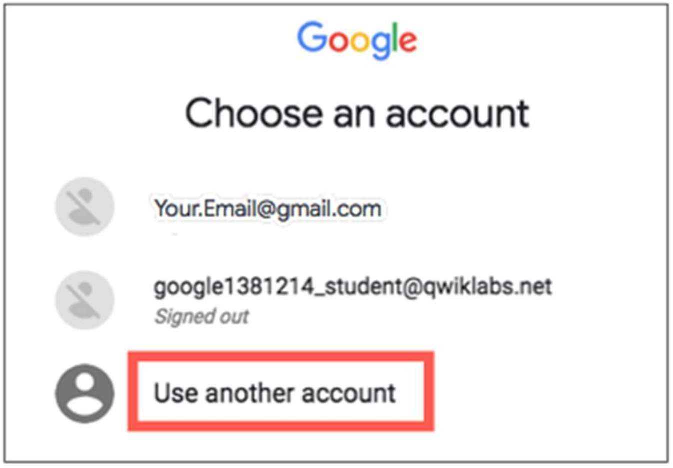
Use your Google Account

Email or phone

Forgot email?

Tip: Open the tabs in separate windows, side-by-side.

If you see the **Choose an account** page, click **Use Another Account**.



Google

Choose an account

Your.Email@gmail.com

google1381214_student@qwiklabs.net
Signed out

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.

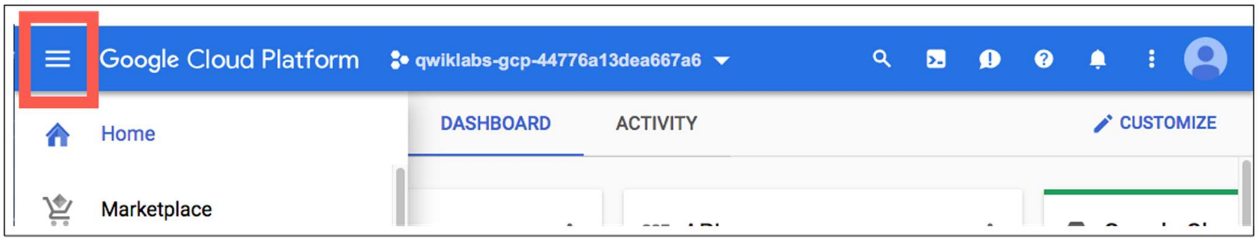
   Important: You must use the credentials from the Connection Details panel. Do not use your Qwiklabs credentials. If you have your own Google Cloud account, do not use it for this lab (avoids incurring charges).

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.

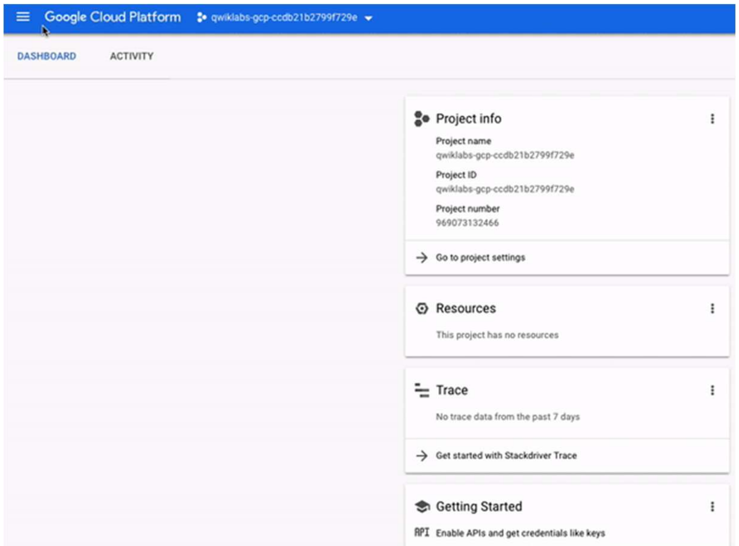
Note: You can view the menu with a list of Google Cloud Products and Services by clicking the **Navigation menu** at the top-
left.



Build a Cloud SQL instance with instances.insert

You will now build a Cloud SQL instance with one of the methods found in the APIs Explorer.

To access the Cloud SQL APIs Explorer tool, open up the navigation menu and select **APIs & Services > Library**:



Project info

Project name
qwiklabs-gcp-ccdb21b2799f729e

Project ID
qwiklabs-gcp-ccdb21b2799f729e

Project number
969073132466

→ Go to project settings

Resources

This project has no resources

Trace

No trace data from the past 7 days

→ Get started with Stackdriver Trace

Getting Started

API Enable APIs and get credentials like keys

In the search bar type **Cloud SQL** and select the **Cloud SQL Admin API** from the results list.

Make sure that API is enabled, if not click **Enable**. Now that you have verified the API's enablement, open this link. This will open a new tab with the Rest API Reference page for the Clod SQL API.
Under Reference tab, navigate to **All APIs and reference > REST Reference > v1beta4 > instances > import**, to select sql.instances.insert method or use this link to create an SQL instance resource.
You'll now fill out a form to use the sql.instances.insert method. The Request body contains the resource properties that you want to use for creating your MySql instance:

project: = your Qwiklabs Project ID

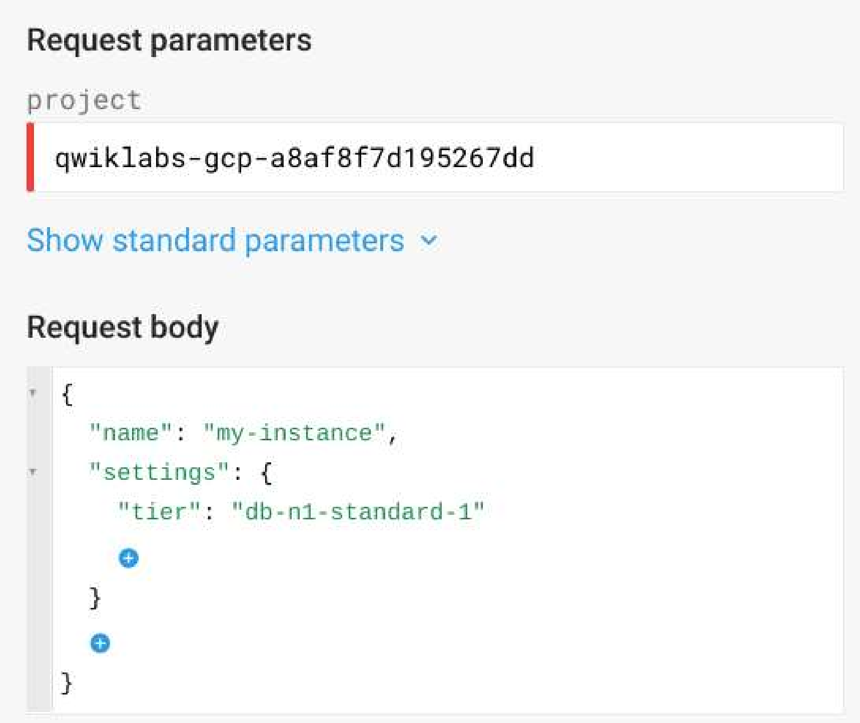
Then click blue plus sign icon inside of the curly braces in the **Request body** field. You'll be asked to select a property - choose "name". Next to it give name as **my-instamce**

- "name": "**my-instance**"
  This will generate the next level. Click inside the brackets and click the blue plus sign icon, select - "**settings**".

Inside "Settings" click inside the curly brace, click the blue plus icon and select "**tier**"; next to it type "**db-n1-standard-1**"

- settings:
    - tier: **db-n1-standard-1**

Your method should resemble the following:



Request parameters

project

qwiklabs-gcp-a8af8f7d195267dd

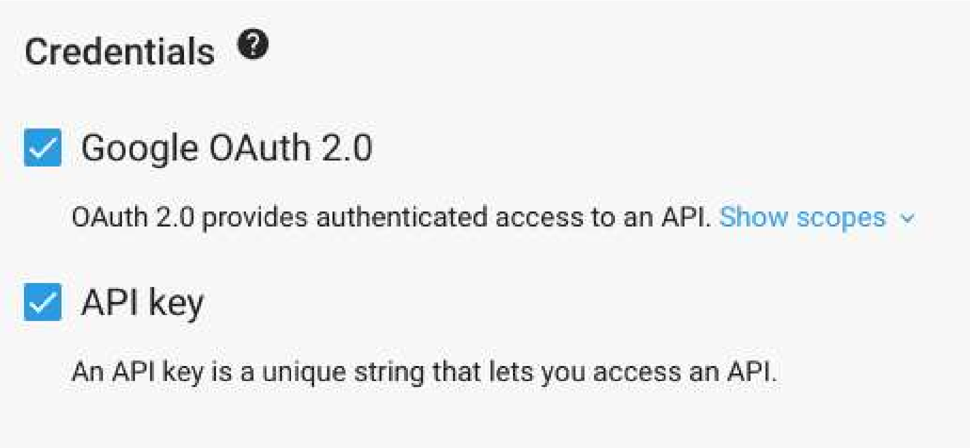
Request body

```
{
  "name": "my-instance",
  "settings": {
    "tier": "db-n1-standard-1"

  }

}
```

Make sure that **Google OAuth 2.0** checkbox is selected under **Credentials** section.



Credentials

☑ Google OAuth 2.0

OAuth 2.0 provides authenticated access to an API. Show scopes

☑ API key

An API key is a unique string that lets you access an API.

Note: To view **Credentials FAQs**, click on question mark icon next to **Credentials** title.

Make sure that there are no trailing spaces in any of the fields. Now scroll down and click the **Execute** button.

When prompted to select an account, click on your Qwiklabs Google account.

On the next screen, click **Allow** to give APIs Explorer access.

You can see the Request that was sent to your project as code, built from the input you provided in the form.

Your response should resemble the following:

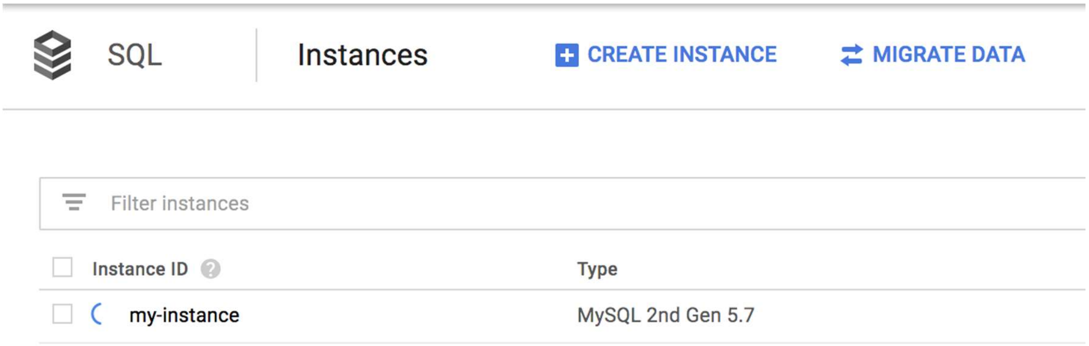
```
{
   "kind": "sql#operation",
   "targetLink": "https://content.googleapis.com/sql/v1beta4/projects/qwiklabs-gcp-
a8af8f7d195267dd/instances/my-instance",
   "status": "PENDING",
   "user": "gcpstaging97434_student@qwiklabs.net",
   "insertTime": "2019-11-04T11:22:49.393Z",
   "operationType": "CREATE",
   "name": "563bc142-1adf-40f7-a9de-eefe3894ece2",
   "targetId": "my-instance",
   "selfLink": "https://content.googleapis.com/sql/v1beta4/projects/qwiklabs-gcp-
a8af8f7d195267dd/operations/563bc142-1adf-40f7-a9de-eefe3894ece2",
   "targetProject": "qwiklabs-gcp-a8af8f7d195267dd"
}
```

You have successfully created a MySQL instance for a Google Cloud project. Now view it in the Cloud Console.

View your Cloud SQL instance

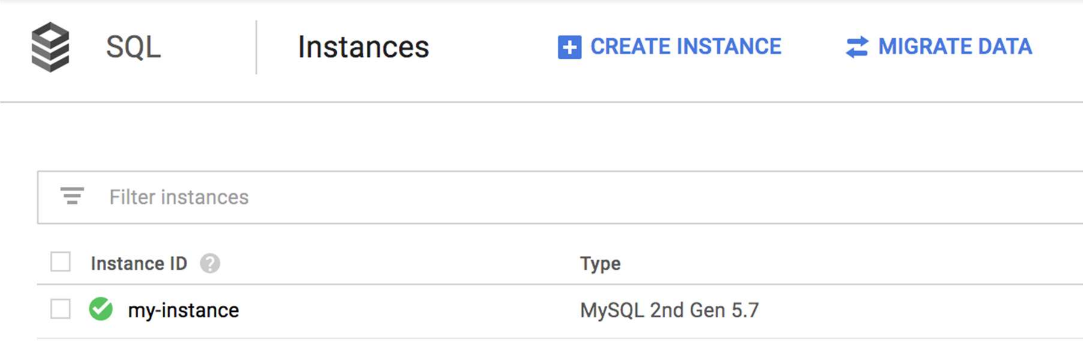
Return to the Cloud Console for this step.

From the left menu, select **SQL**, which is located under the Storage header. This will bring you to the instances page, where you will see your MySQL instance being created:



Instance ID	Type
my-instance	MySQL 2nd Gen 5.7

It will take a few minutes for your instance to be created. You will know that your instance has been created when `my-instance` resembles the following:



□ Instance ID	Type
□ ✓ my-instance	MySQL 2nd Gen 5.7

You may have to refresh your page from time to time to see changes.

Return to the APIs Explorer page once your instance has been created and you're ready for the next step.

Test Completed Task

Click **Check my progress** to verify your performed task. If you have completed the task successfully you will granted with an assessment score.

Create a database with databases.insert

Now that you have a Cloud SQL instance created, add a database to it with the `databases.insert` method.

Under Reference tab, navigate to **All APIs and reference > REST Reference > v1beta4 > databases > delete** to select sql.databases.insert method or use [this link]() to create database.
You'll now fill out a form to use the sql.databases.insert method. The Request body contains the resource properties that you want to use for creating the database.

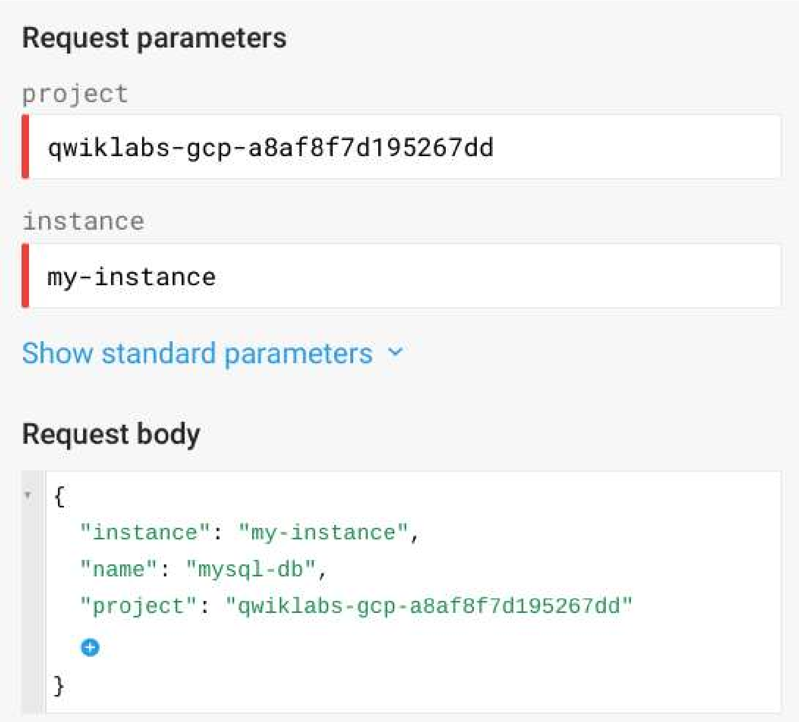
project: = your Qwiklabs Project ID

instance: = **my-instance**.

Then in the Request body:

Request body = Click inside the brackets to select the following properties:

- instance: **my-instance**
- name: **mysql-db**
- project: your Qwiklabs Project ID.
  Your method should resemble the following:



Request parameters

project

qwiklabs-gcp-a8af8f7d195267dd

instance

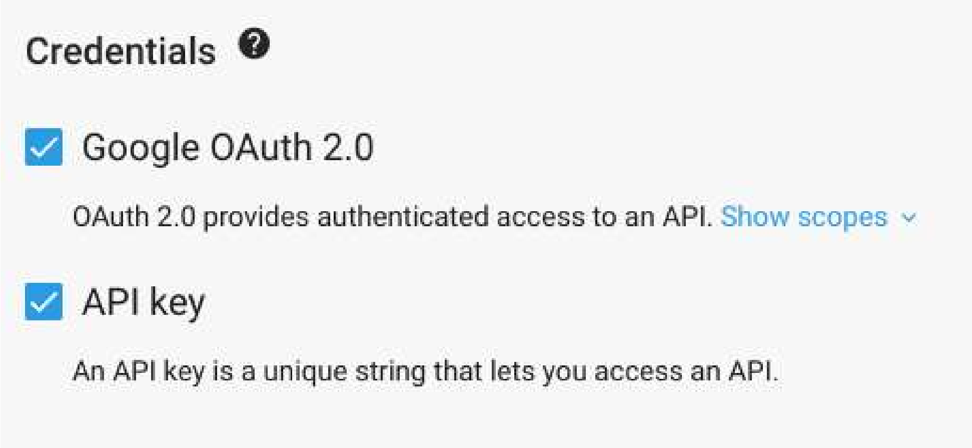
my-instance

Show standard parameters

Request body

```
{
  "instance": "my-instance",
  "name": "mysql-db",
  "project": "qwiklabs-gcp-a8af8f7d195267dd"
}
```

Make sure that **Google OAuth 2.0** checkbox is selected under **Credentials** section.



Credentials ?

☑ Google OAuth 2.0

OAuth 2.0 provides authenticated access to an API. Show scopes ⌄

☑ API key

An API key is a unique string that lets you access an API.

Note: To view **Credentials FAQs**, click on question mark icon next to **Credentials** title.

Make sure that there are no trailing spaces in any of the fields. Now scroll down and click the **Execute** button.

You can see the Request that was sent to your project as code, built from the input you provided in the form.

Your response should resemble the following:

```
200
- Show headers -
{
  "kind": "sql#operation",
  "targetLink": "https://content.googleapis.com/sql/v1beta4/projects/qwiklabs-gcp-a8af8f7d195267dd/instances/my-instance/databases/mysql-db",
  "status": "DONE",
  "user": "gcpstaging97434_student@qwiklabs.net",
  "insertTime": "2019-11-04T12:24:33.776Z",
  "startTime": "2019-11-04T12:24:33.786Z",
  "endTime": "2019-11-04T12:24:34.419Z",
  "operationType": "CREATE_DATABASE",
  "name": "dc0cb7f7-340c-4c9a-b9d8-3afc4e8680a0",
  "targetId": "my-instance",
  "selfLink": "https://content.googleapis.com/sql/v1beta4/projects/qwiklabs-gcp-a8af8f7d195267dd/operations/dc0cb7f7-340c-4c9a-b9d8-3afc4e8680a0",
  "targetProject": "qwiklabs-gcp-a8af8f7d195267dd"
}
```

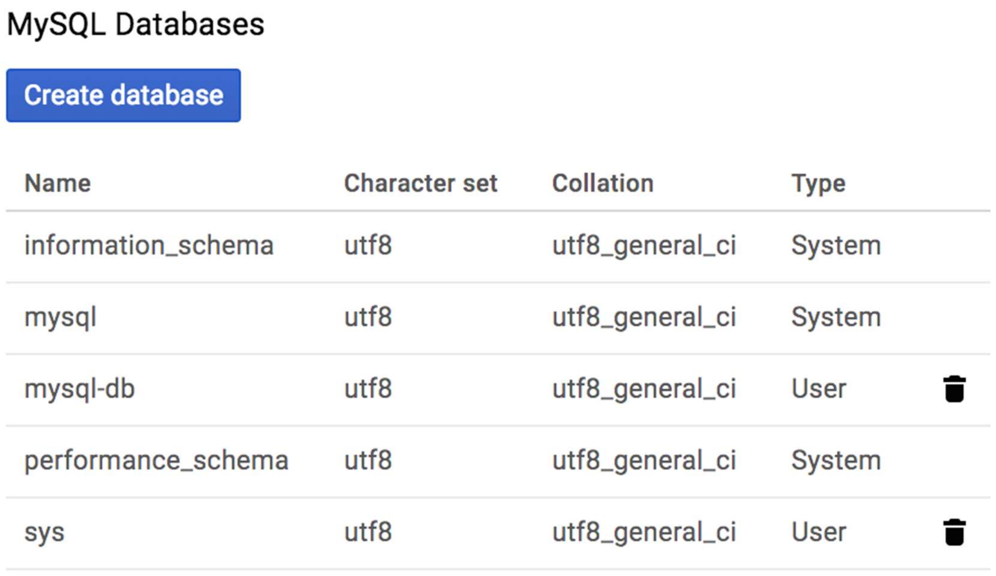
You have successfully created a database inside your Cloud SQL instance. You are now ready to add some data to your database. Before doing so, view your database in the Cloud Console.

View your new database

Return to the Cloud Console for this step.

From the Navigation menu select **SQL**, which is located under the Storage header. This will bring you to the instances page. Click on **my-instance**. Then select the **databases** tab.

You will see a list of databases, with your mysql-db added:



Name	Character set	Collation	Type	
information_schema	utf8	utf8_general_ci	System	
mysql	utf8	utf8_general_ci	System	
mysql-db	utf8	utf8_general_ci	User	🗑
performance_schema	utf8	utf8_general_ci	System	
sys	utf8	utf8_general_ci	User	🗑

The ordering of databases in the above screenshot may be different from what you see in your Console. Make sure you see `mysql-db` in the list.

Test Completed Task

Click **Check my progress** to verify your performed task. If you have completed the task successfully you will granted with an assessment score.

Create a table in your MySQL database and upload a CSV file to a Cloud Storage Bucket

Now you will create a table in your MySQL database and a "comma separated values" (CSV) file, which will be uploaded to Cloud Storage.

From the Cloud Console, open up a new Cloud Shell session. Run the following command to connect to your MySQL instance:

```
gcloud sql connect my-instance --user=root
```

It may take a minute or two to connect to your instance.

Enter through the password prompt since you didn't set one. You should now be logged into your instance:

```
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MySQL connection id is 494
Server version: 5.7.14-google-log (Google)

Copyright (c) 2000, 2017, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MySQL [(none)]>
```

Run the following command to switch over to your `mysql-db` database:

```
USE mysql-db;
```

You will now create a table in `mysql-db` so you can import data into a specific location.

Run the following command to create a table called `info`:

```
CREATE TABLE info (name VARCHAR(255), age INT, occupation VARCHAR(255));
```

You should receive a similar output:

```
 Query OK, 0 rows affected (0.06 sec)
```

You have successfully created an empty table in your MySQL database. **Do not exit out of this Cloud Shell session**.

Open a new tab in Cloud Shell by clicking the **+** tab in the top ribbon.

You will now create a CSV file and upload it to a Cloud Storage bucket.

Run the following command to create a file named `employee_info.csv`:

```
touch employee_info.csv
```

Now run the following command to edit `employee_info.csv`:

```
nano employee_info.csv
```

Copy and paste the following into the file:

```
"Sean", 23, "Content Creator"
"Emily", 34, "Cloud Engineer"
"Rocky", 40, "Event coordinator"
"Kate", 28, "Data Analyst"
"Juan", 51, "Program Manager"
"Jennifer", 32, "Web Developer"
```

Hold **CTRL+X** → **Y** → **ENTER** to save the file. You now have a simple CSV file that's ready to be uploaded to Cloud Storage.

Run the following command to create a new Cloud Storage bucket, replacing `<YOUR_BUCKET_NAME>` with a unique bucket name that follows the Cloud Storage naming guidelines:

```
gsutil mb gs://<YOUR_BUCKET_NAME>
```

Test Completed Task

Click **Check my progress** to verify your performed task. If you have completed the task successfully you will granted with an assessment score.

Run the the following command to upload the CSV file to your Cloud Storage bucket, replacing `<YOUR_BUCKET_NAME>` with the name of your bucket:

```
gsutil cp employee_info.csv gs://<YOUR_BUCKET_NAME>/
```

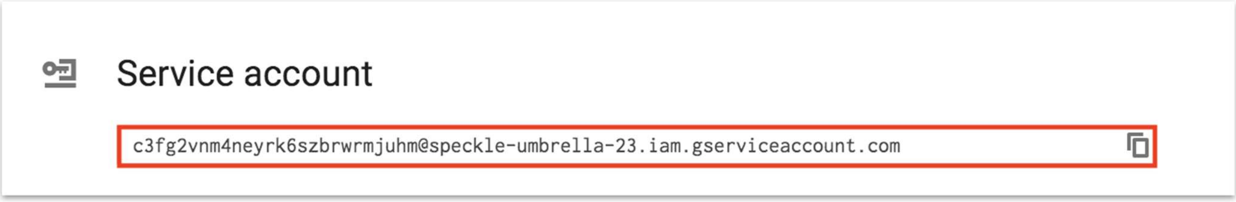
Test Completed Task

Click **Check my progress** to verify your performed task. If you have completed the task successfully you will granted with an assessment score.

To upload this file to your MySQL database, update specific permissions with your Cloud SQL service account.

From the navigation menu, select **SQL** and then click on **my-instance**.

From the overview page, scroll down and find the "Service account" card and **copy** the service account name:



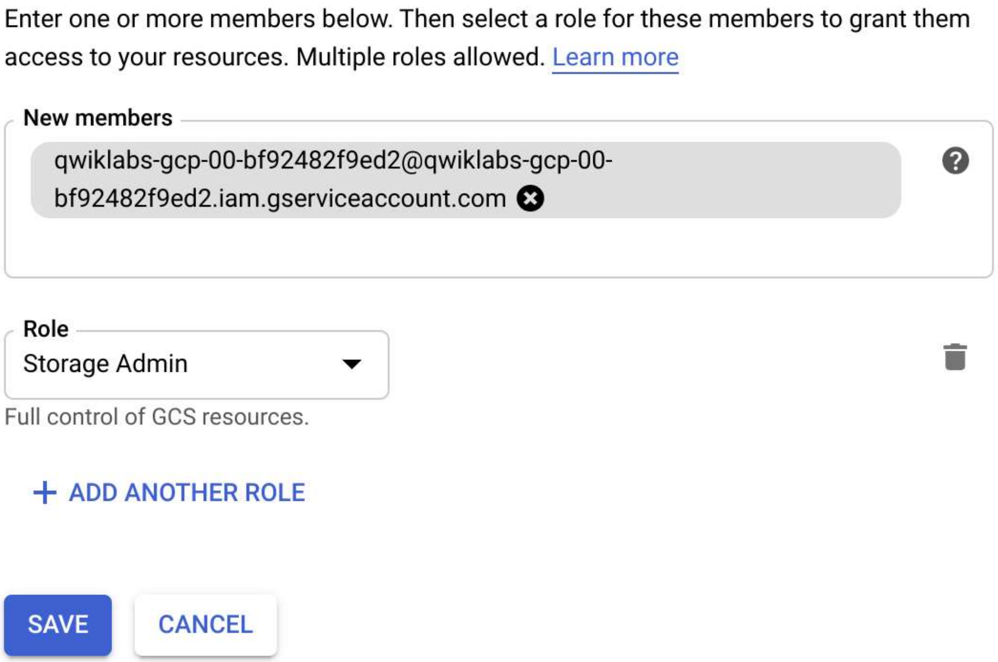
Service account

c3fg2vnm4neyrk6szbrwrmjuhm@speckle-umbrella-23.iam.gserviceaccount.com

Now open the navigation menu and select **Storage** > **Cloud Storage** > **Browser**.

Click on the three-dotted menu on the far right side of the bucket and click **Edit bucket permissions**.
For the member field, Click **+ Add member**.
Now paste the Cloud SQL service account name you copied earlier in the **New members**.
Click the roles drop down and select **Cloud Storage** > **Storage Admin**.

Your permissions sidebar should resemble the following:



Enter one or more members below. Then select a role for these members to grant them access to your resources. Multiple roles allowed. Learn more

New members: qwiklabs-gcp-00-bf92482f9ed2@qwiklabs-gcp-00-bf92482f9ed2.iam.gserviceaccount.com

Role: Storage Admin

Full control of GCS resources.

Click **SAVE**. Your Cloud Storage bucket can now accept API requests from your Cloud SQL instance.

You will now copy the CSV file into your Cloud SQL database.

Test Completed Task

Click **Check my progress** to verify your performed task. If you have completed the task successfully you will granted with an assessment score.

Add a CSV file to your database using instances.import

Under Reference tab, navigate to **All APIs and reference > REST Reference > v1beta4 > instances > import** to select sql.instances.import method or use this link to import data in database.
You'll now fill out a form to use the sql.instances.import method. The Request body contains the resource properties that you want to use for importing the data.

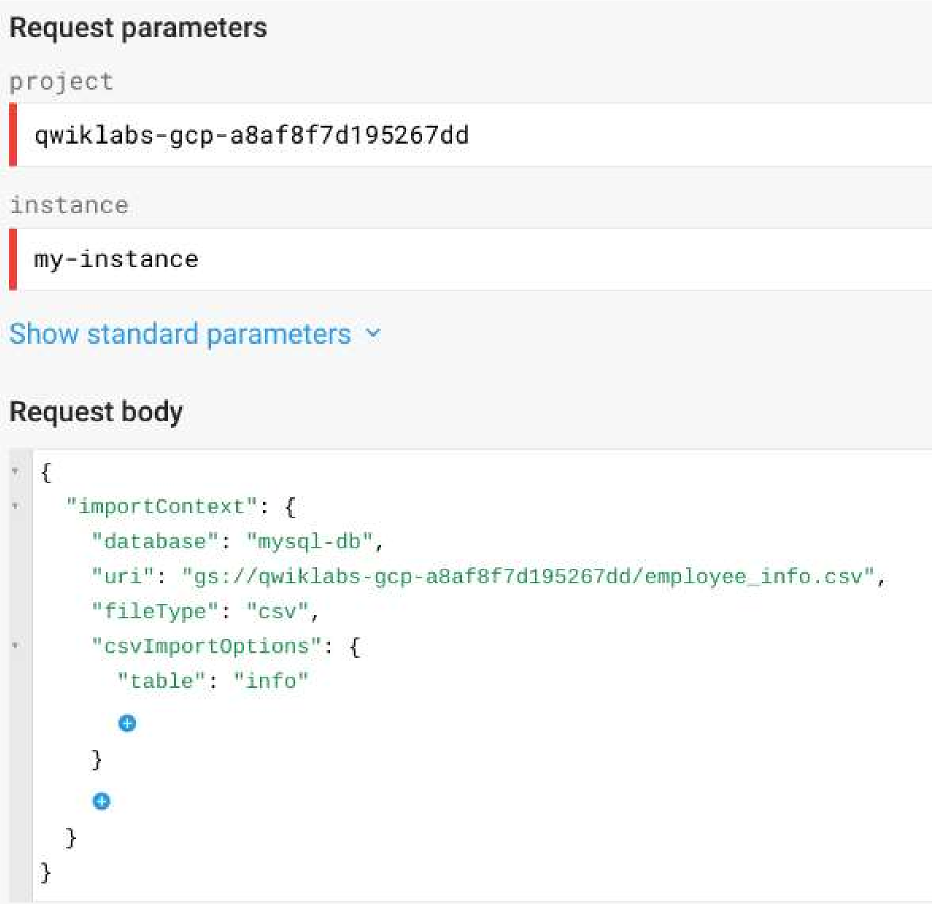
project: = your Qwiklabs Project ID

instance: = **my-instance**

Request body = Click inside the brackets to select the following properties:

- importContext:
  - database: **mysql-db**
  - uri: **gs://`<YOUR_BUCKET_NAME>`/employee_info.csv**,
    replacing `<YOUR_BUCKET_NAME>` with the name of your bucket
  - fileType: **csv**
  - csvImportOptions:
    - table: **info**

Your method should now resemble the following:



Request parameters

project

qwiklabs-gcp-a8af8f7d195267dd

instance

my-instance

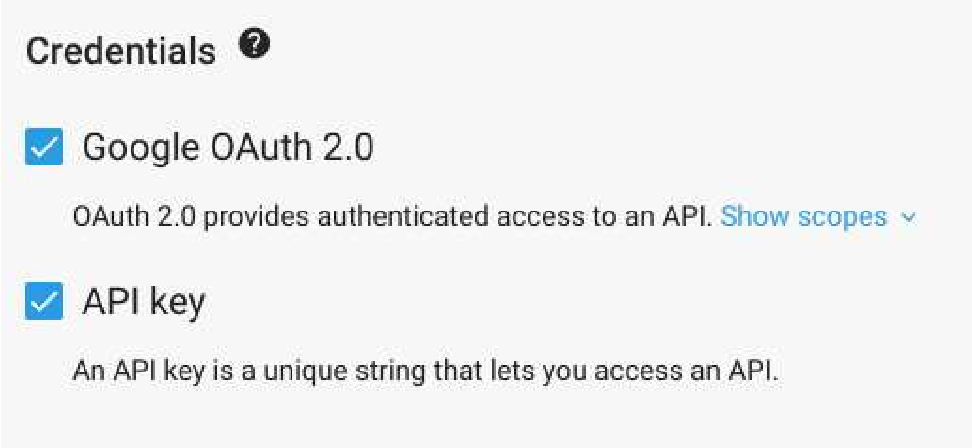
Request body

```
{
  "importContext": {
    "database": "mysql-db",
    "uri": "gs://qwiklabs-gcp-a8af8f7d195267dd/employee_info.csv",
    "fileType": "csv",
    "csvImportOptions": {
      "table": "info"

    }

  }
}
```

Make sure that **Google OAuth 2.0** checkbox is selected under **Credentials** section.



Credentials

☑ Google OAuth 2.0

OAuth 2.0 provides authenticated access to an API. Show scopes

☑ API key

An API key is a unique string that lets you access an API.

Note: To view **Credentials FAQs**, click on question mark icon next to **Credentials** title.

Make sure that there are no trailing spaces in any of the fields. Now scroll down and click the **Execute** button.

You can see the Request that was sent to your project as code, built from the input you provided in the form.

Your response should resemble the following:

```
200
- Show headers -
{
  "kind": "sql#operation",
  "targetLink": "https://content.googleapis.com/sql/v1beta4/projects/qwiklabs-gcp-
a8af8f7d195267dd/instances/my-instance",
  "status": "PENDING",
  "user": "gcpstaging97434_student@qwiklabs.net",
  "insertTime": "2019-11-04T13:50:07.537Z",
  "operationType": "IMPORT",
  "importContext": {
    "uri": "gs://qwiklabs-gcp-a8af8f7d195267dd/employee_info.csv",
    "database": "mysql-db",
    "kind": "sql#importContext",
    "fileType": "CSV",
    "csvImportOptions": {
      "table": "info"
    }
  },
  "name": "af3aaeb1-4f68-498c-bec5-d030201baf33",
  "targetId": "my-instance",
  "selfLink": "https://content.googleapis.com/sql/v1beta4/projects/qwiklabs-gcp-
a8af8f7d195267dd/operations/af3aaeb1-4f68-498c-bec5-d030201baf33",
  "targetProject": "qwiklabs-gcp-a8af8f7d195267dd"
}
```

You have successfully added a CSV file to your MySQL database table using the APIs Explorer. You will now inspect this table.

Inspect your updated database

Return to the Cloud Console and return to your **MySQL Cloud Shell tab** that you left open. You will now see if the `info` table picked up the CSV file data.

Run the following command to view what's in the table:

```
SELECT * FROM info;
```

You should receive a similar output:

```
+----------+------+----------------------+
| name     | age  | occupation           |
+----------+------+----------------------+
| Sean     |   23 |  "Content Creator"   |
| Emily    |   34 |  "Cloud Engineer"    |
| Rocky    |   40 |  "Event coordinator" |
| Kate     |   28 |  "Data Analyst"      |
| Juan     |   51 |  "Program Manager"   |
| Jennifer |   32 |  "Web Developer"     |
+----------+------+----------------------+
6 rows in set (0.04 sec)
```

With one API call in the Explorer tool, you were able to copy a CSV file located in Cloud Storage and merge it with a table in your MySQL database. This illustrates the power and efficiency of API method calls opposed to the multiple steps it would take in the Cloud Console.

Delete your database

You will now delete the MySQL database that hosts the employee information.

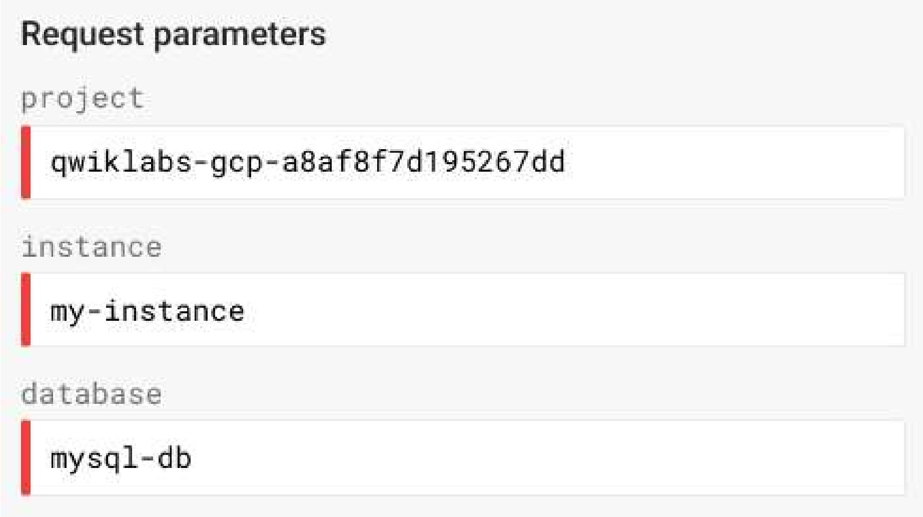
Under Reference tab, navigate to **All APIs and reference > REST Reference > v1beta4 > databases > delete** to select sql.databases.delete method or use this link to delete the database.
You'll now fill out a form to use the sql.databases.delete method:

project: = your Qwiklabs Project ID

instance: = **my-instance**

database: = **mysql-db**

Your method should resemble the following:



Request parameters

project

qwiklabs-gcp-a8af8f7d195267dd

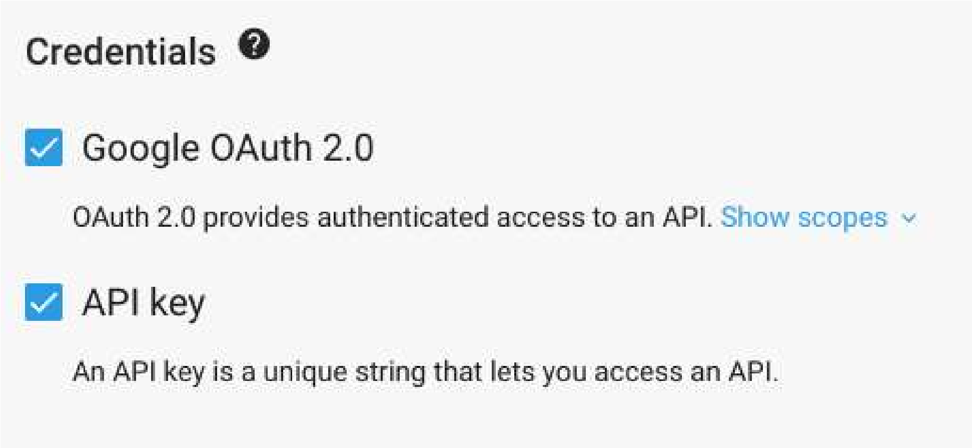
instance

my-instance

database

mysql-db

Make sure that **Google OAuth 2.0** checkbox is selected under **Credentials** section.



Credentials

☑ Google OAuth 2.0

OAuth 2.0 provides authenticated access to an API. Show scopes

☑ API key

An API key is a unique string that lets you access an API.

Note: To view **Credentials FAQs**, click on question mark icon next to **Credentials** title.

Make sure that there are no trailing spaces in any of the fields. Now scroll down and click the **Execute** button.

You can see the Request that was sent to your project as code, built from the input you provided in the form.

Your response should resemble the following:

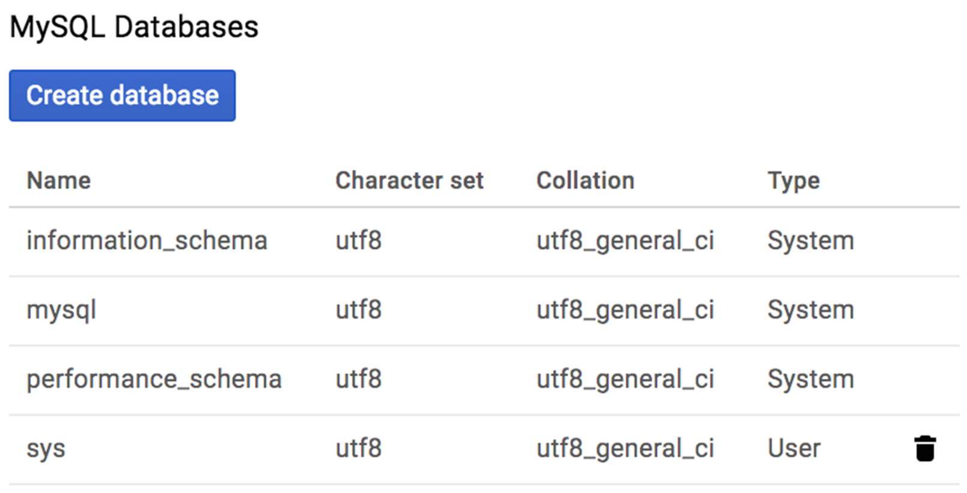
```
200
- Show headers -
{
  "kind": "sql#operation",
  "targetLink": "https://content.googleapis.com/sql/v1beta4/projects/qwiklabs-gcp-
a8af8f7d195267dd/instances/my-instance",
  "status": "DONE",
  "user": "gcpstaging97434_student@qwiklabs.net",
  "insertTime": "2019-11-04T14:17:09.072Z",
  "startTime": "2019-11-04T14:17:09.072Z",
  "endTime": "2019-11-04T14:17:10.319Z",
  "operationType": "DELETE_DATABASE",
  "name": "e8abc1b8-45b4-432c-82c0-436d38ca5879",
  "targetId": "my-instance",
  "selfLink": "https://content.googleapis.com/sql/v1beta4/projects/qwiklabs-gcp-a8af8f7d195267dd/operations/e8abc1b8-45b4-432c-82c0-436d38ca5879",
  "targetProject": "qwiklabs-gcp-a8af8f7d195267dd"
}
```

You have successfully deleted a database inside your Cloud SQL instance. Return to the Cloud Console for the following step.

View your updated Cloud SQL instance

From the Cloud Console, from the Navigation menu select **SQL**, which is located under the Databases header. This will bring you to the instances page.

Click on **my-instance**, then click on the **databases** tab. You will see a list of databases with `mysql-db` removed:



MySQL Databases

Name	Character set	Collation	Type
information_schema	utf8	utf8_general_ci	System
mysql	utf8	utf8_general_ci	System
performance_schema	utf8	utf8_general_ci	System
sys	utf8	utf8_general_ci	User

This concludes the hands-on practice in this lab. You can end your lab here or with the remaining time explore other Cloud SQL Admin API methods in the APIs Explorer.

Test your Understanding

Below are multiple choice questions to reinforce your understanding of this lab's concepts. Answer them to the best of your abilities.

Using Cloud SQL sevice in Google Cloud which are the following databases you can manage?

☐ tgreSQL

☐ SQL

Congratulations!

In this lab, you got hands-on practice with Cloud SQL Admin API methods using the APIs Explorer. After building a Cloud SQL instance, you configured and attached a MySQL database. You then created a simple CSV file and uploaded it to Cloud Storage, which was pushed to a MySQL database. Finally, you learned how to delete a database in a Cloud SQL instance. You are now ready to take more Exploring APIs labs.

Finish Your Quest

This self-paced lab is part of the Qwiklabs Quest Exploring APIs. A Quest is a series of related labs that form a learning path. Completing this Quest earns you the badge above, to recognize your achievement. You can make your badge (or badges) public and link to them in your online resume or social media account. Enroll in this Quest and get immediate completion credit if you've taken this lab. See other available Qwiklabs Quests.

Next Steps / Learn More

Be sure to check out the following labs for more practice with the APIs Explorer:

- APIs Explorer: App Engine
- APIs Explorer: IoT

Google Cloud Training & Certification

...helps you make the most of Google Cloud technologies. Our classes include technical skills and best practices to help you get up to speed quickly and continue your learning journey. We offer fundamental to advanced level training, with on-demand, live, and virtual options to suit your busy schedule. Certifications help you validate and prove your skill and expertise in Google Cloud technologies.
Manual Last Updated April 27, 2021
Lab Last Tested April 27, 2021