Qwiklabs tour and Google Cloud Platform

Summary

Google Cloud Platform (GCP) is a set of cloud services hosted on Google's infrastructure. From computing and storage, to data analysis, machine learning, and networking, GCP offers a variety of services and APIs that can be integrated with any cloud-computing project or application — both at the personal and corporate level. In this introductory lab, you will begin your first steps in GCP by practicing directly using the Google Cloud Platform Console — a UI in a browser to access and manage Google Cloud services. You will identify the main features of GCP and also learn the ins and outs of the Qwiklabs environment. If you are new to cloud computing or looking for a summary of GCP and Qwiklabs, you are in the right place. Continue reading to learn more about the lab's specifications, and various areas where you can practice directly.

What you will learn

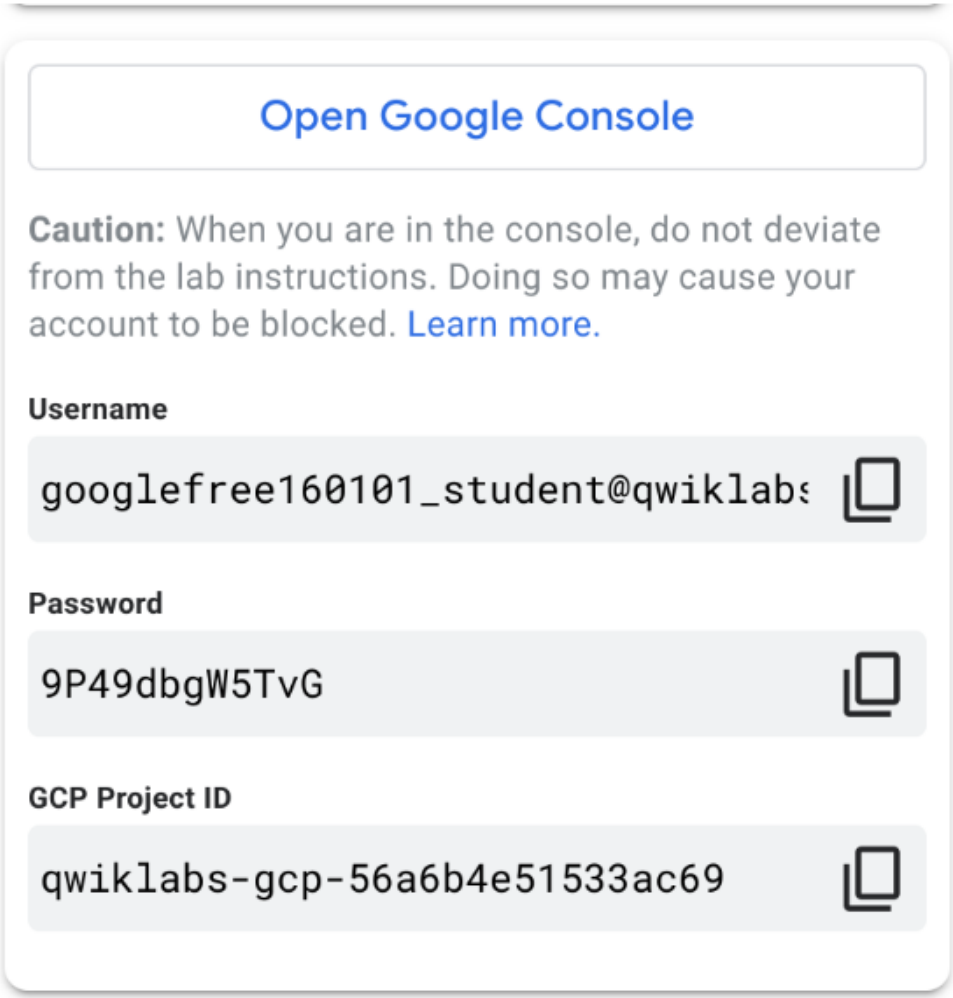
In this lab, you will:

- Study the Qwiklabs platform and identify the main features of the lab environment.
- Learn (and possibly buy) Qwiklabs credits and launch lab instances.
- Learn how to access the GCP Console with certain credentials.
- Study the GCP project and identify common misconceptions regarding the GCP project.
- Learn how to use the GCP navigation menu to identify types of GCP services.
- Learn the basic roles and use the IAM Cloud service to check the actions available for certain users.
- Learn Cloud Shell and run commands using the toolkit gcloud.
- Learn about the library API and its main features.
- Using the inherent features of Cloud Shell and run commands like touch, nano and catto create, edit and view the file contents.

Access the GCP Console

Key Terms

After your lab instance is up and running, look at the Connection Details panel on the left. This panel contains the Open Google Console button and the User Name, Password and GCP Project ID columns.



Note : Your credentials will be similar, but not exactly the same credentials above - new temporary credentials will be created for each lab instance.

Before proceeding further, let's discuss each of these components.

Open Google Console

This is the button to open the Google Cloud Platform Console - the web console and the central development hub for GCP. When you start working at GCP, you will do most of the work from this interface. All GCP Qwiklabs use consoles in this or other forms.

GCP Project ID

Project GCP is a managing entity for Google Cloud resources. Usually projects contain resources and services — for example, projects can hold a collection of virtual machines, a series of databases, and networks that interconnect resources and services. The project also contains settings and permissions, which determine security rules and who can access the resource.

The GCP Project ID is a unique ID that is used to link GCP resources and APIs to a specific project. Project IDs are unique throughout GCP, meaning that there can only be one **qwiklabs-gcp-xxx ....** , which makes it globally identifiable.

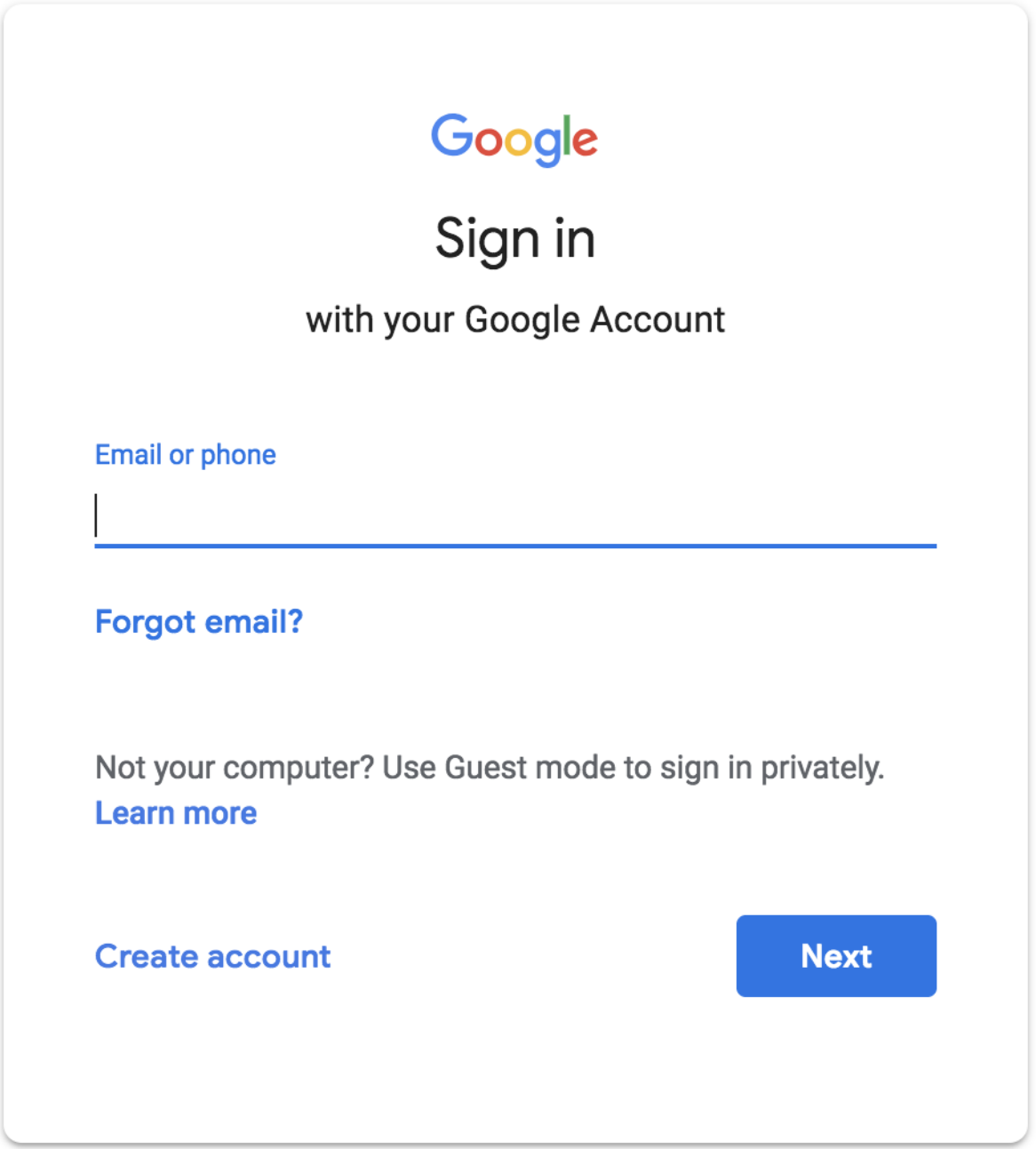
Username and Password

This is the credential that represents the identity in the Identity and Access Management (IAM) service that has access permissions (one or more roles), which allows you to handle GCP resources in the allocated project. This credential is *temporary* , and will only function during lab access time. That is, after the timer runs out, you can no longer access the GCP project with these credentials.

Login to GCP

After getting a better understanding of the Connection Details panel, now let's use the details in that panel to log into the GCP Console. Click the **Open Google Console** button . This action will open the GCP login page in a new browser tab.

Now you are on a page similar to the following:

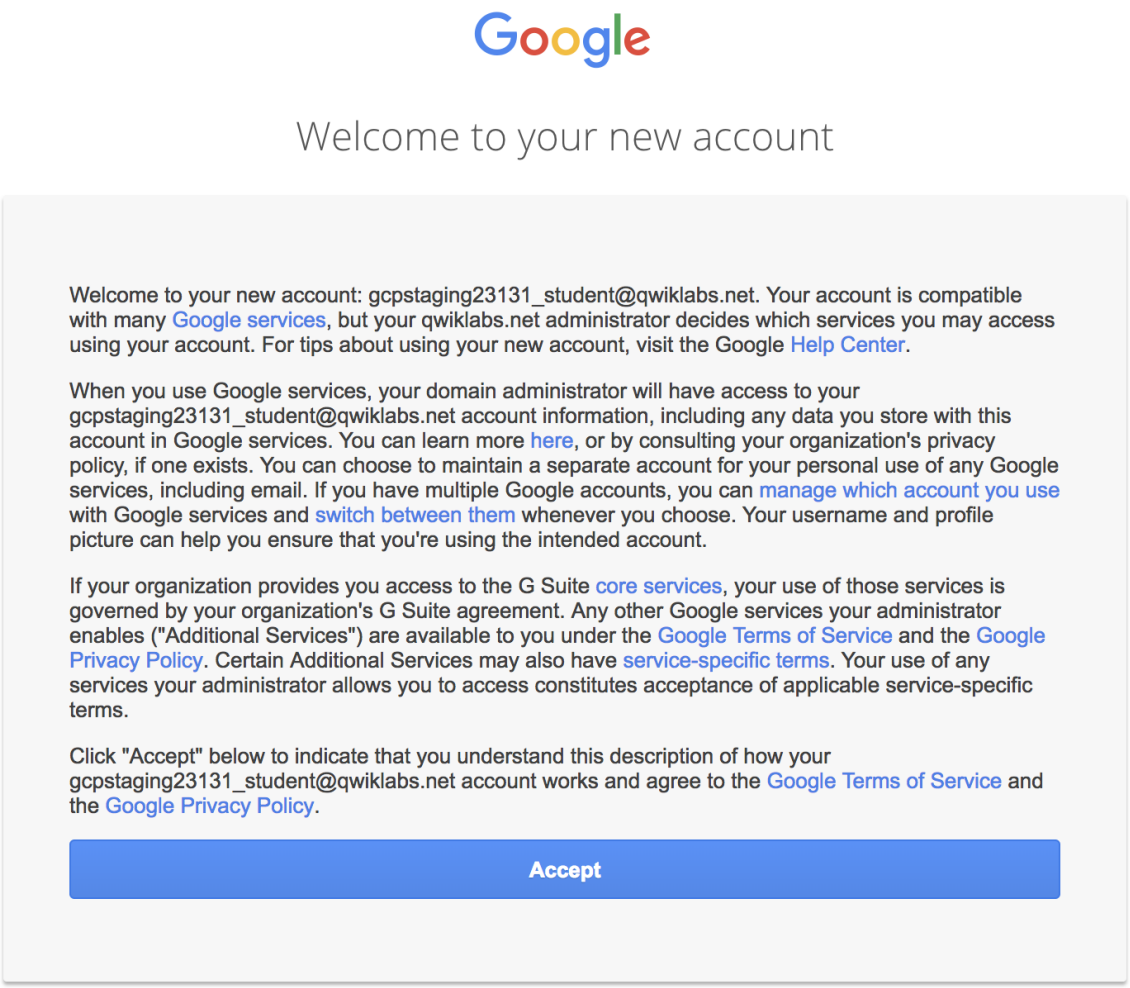


If you've ever logged into Google apps, like Gmail, this page certainly looks familiar. To log in to the console, copy the **Username** from Connection Details, and paste it into the "Email or telephone" column, then press Enter. *Wait! Make sure you log in using the email googlexxxxxx_student@qwiklabs.net, NOT your personal or company email address.*

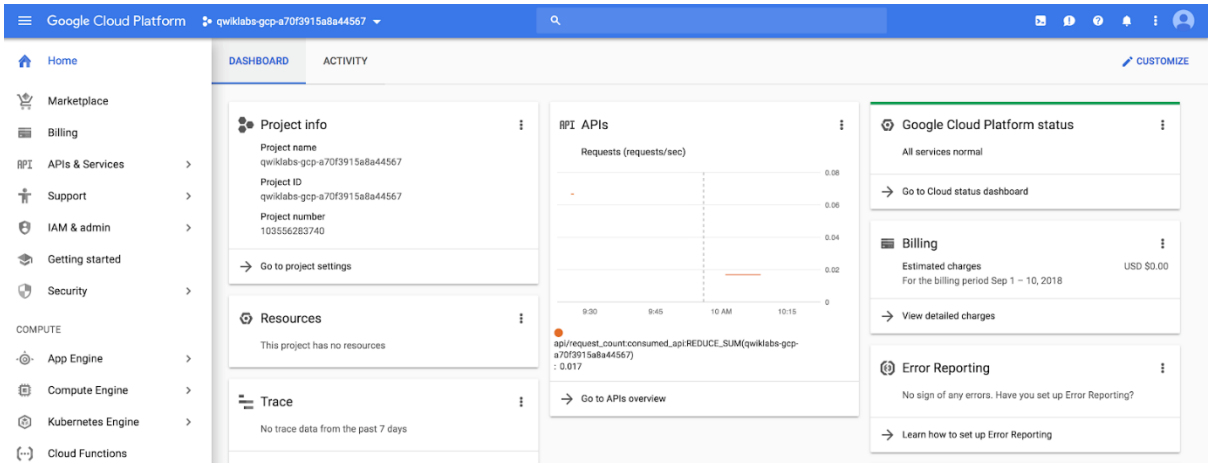
Go back and copy the **Password** from the credentials provided on the Qwiklabs lab page, paste it into the GCP login "Password" column, then press Enter.

A username similar to googlexxxxxx_student@qwiklabs.net is a Google account created for you to use as a Qwiklabs student. This username contains a specific domain name, i.e. "qwiklabs.net", and is given an IAM role to access the GCP Project provided to you.

If the login process is successful, your page will look like the following:



Continue and click **Agree** to declare agreement to Google's terms of service and privacy policy. Next, you will be taken to the "Protect your account" page. Because this account is temporary, you don't need to update your recovery phone number or email. Click **Done** .
You will now be taken to the "Terms of Service Update" page — for email updates regarding future announcements, check the **No.** box . If you agree to the Google Cloud Platform terms of service, check the **Yes** box .
As such, you have successfully accessed the Google Cloud Platform Console with Qwiklabs credentials. Now your page will look like the following:



Test your understanding

Answer the following multiple choice questions to strengthen your understanding of the concepts discussed so far.

What field is NOT found in the Connection Details panel?

GCP Project ID

Password

System admin

Open Google Console

Submit

The username in the Connection Details panel, which resembles googlexxxxxx_student@qwiklabs.net is a GCP IAM identity.

True

False

Submit

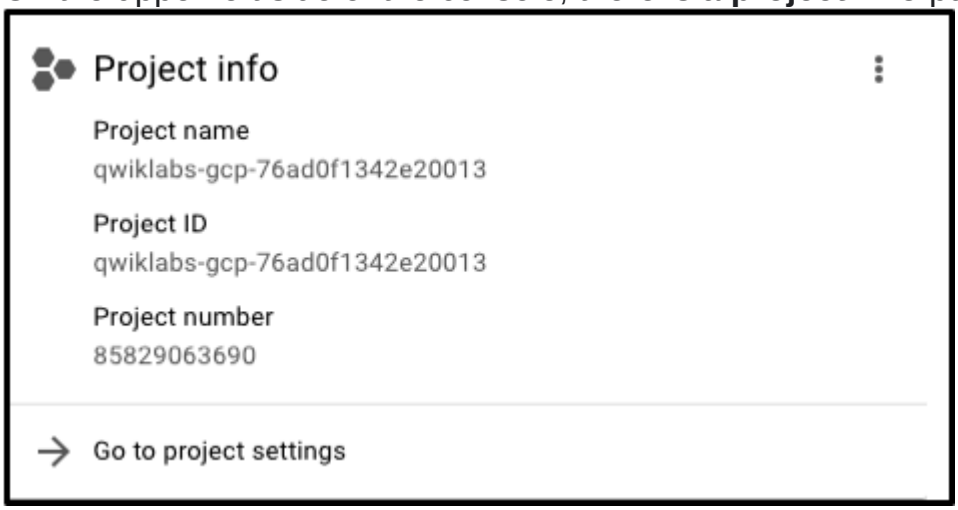
After successfully logging into the GCP Console and understanding the basics of credentials, let's deepen our understanding of the GCP project.

Project in the GCP Console

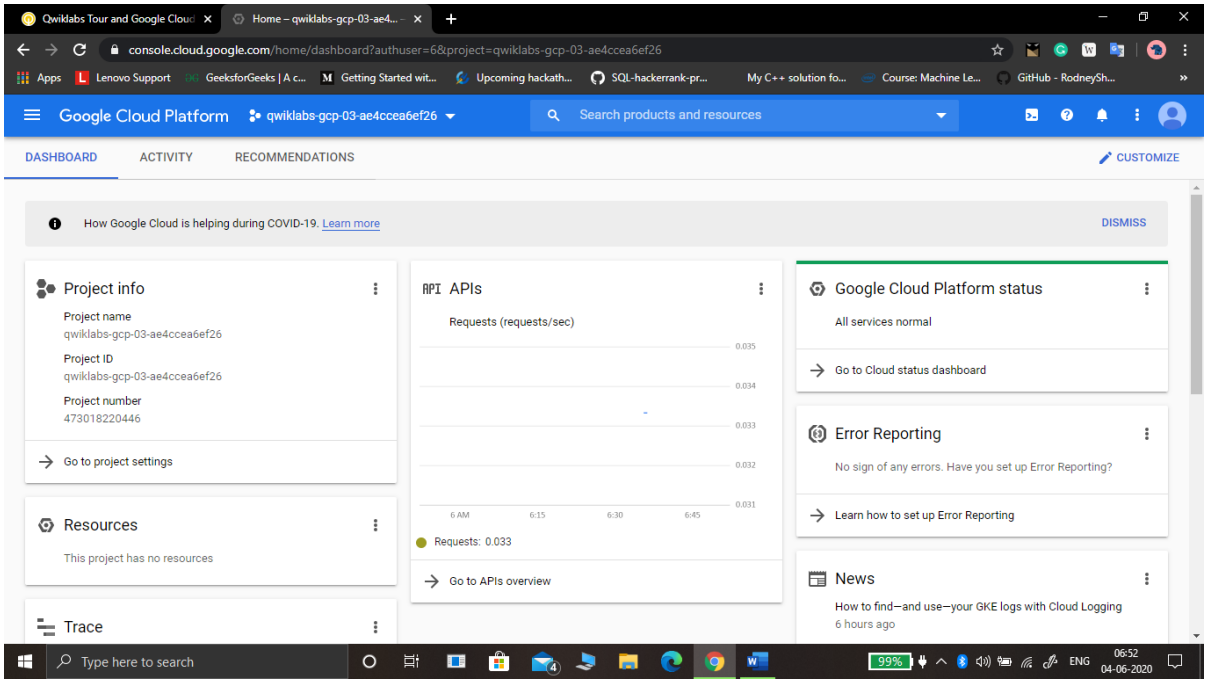
We alluded to the GCP project when discussing the "Connection Details" panel component. Again, here is the definition:

Project GCP is a managing entity for Google Cloud resources. Usually projects contain resources and services — for example, projects can hold a collection of virtual machines, a series of databases, and networks that interconnect resources and services. The project also contains settings and permissions, which determine security rules and who can access the resource.

On the upper left side of the console, there is a **project Info** panel as follows:



As you can see, your project has a **name** , **ID** and **number** . This identifier is often used when interacting with GCP services. You work using one of the GCP projects, so you can practice using certain services or features of GCP. Maybe you don't know it yet, but actually you have access to more than one GCP project. In fact, in some labs, you may be given more than one project to complete the tasks given. If you click on the drop-down menu that displays your project name and select **ALL** , you will also see the project "Qwiklabs Resources":



Don't turn to Qwiklabs Resources at this stage. You can use it later in another lab.

It's not uncommon for large companies or experienced GCP users to have tens to thousands of GCP projects. Organizations use GCP in a variety of ways, so projects are an appropriate way to sort out cloud-computing services (for example, by team or by product.)
"Qwiklabs Resources" is a project that contains files, data sets and machine images for a particular lab, and can be accessed from any GCP lab environment. It is important to know that "Qwiklabs Resources" are shared with all Qwiklabs users (read only), so you will not be able to delete or change them.
The GCP project that you are working on and whose name is similar to `qwiklabs-gcp-xxx...` a *temporary one* ; that is, this project and everything in it will be deleted after the lab ends. Every time you start a new lab, you will be given access to one or several new GCP projects, and that's where (not "Qwiklabs Resources") you will carry out all the lab steps.

Test your understanding

Answer the following multiple choice questions to strengthen your understanding of the concepts discussed so far.

An organizing entity for anything you build with the Google Cloud Platform.

Password

GCP Project

Username

Cloud Storage bucket

Submit

Qwiklabs Resources is shared (read only) with all Qwiklabs users, meaning you won't be able to delete or modify it.

True

False

Submit

Qwiklabs Resources is the project where you run all of your lab steps.

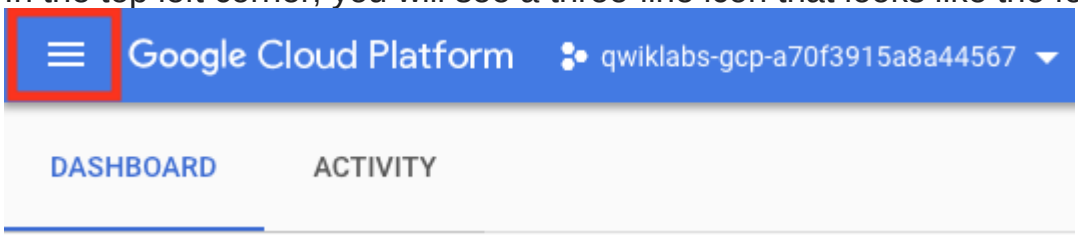
True

False

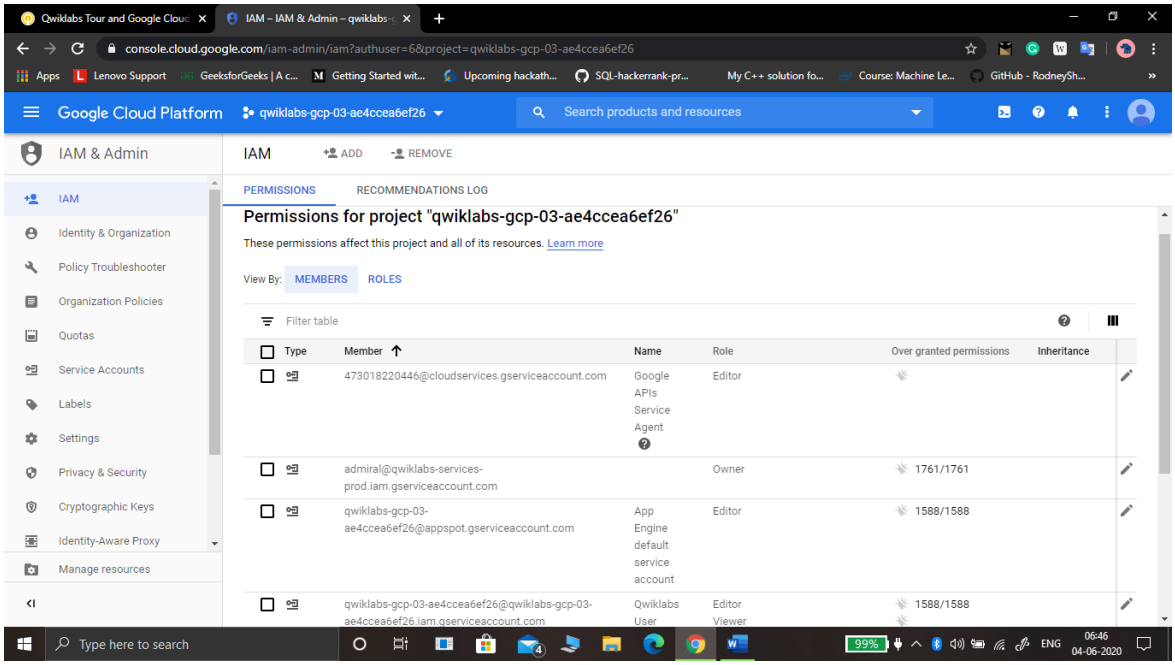
Submit

Navigation and Service Menu

In the top left corner, you will see a three-line icon that looks like the following:



If clicked, this icon will display (or hide) **the navigation menu** that points to the GCP core services. If the menu does not appear, click the icon and scroll to see the types of services offered:



The navigation menu is an important component of the GCP Console — this menu offers quick access to platform services and also briefly outlines the offer. By scrolling the menu, you will see seven categories of GCP services:

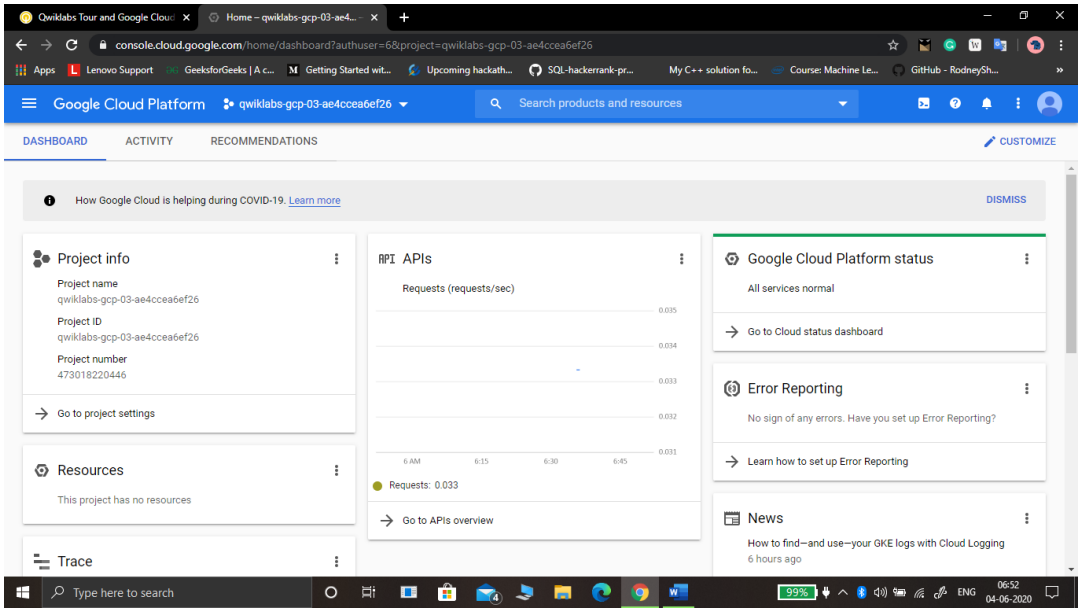
- **Compute** : accommodates various types of machines that support all types of workloads. These various computing options allow you to determine how much you want to be involved with operational and infrastructure details, among other things.
- **Storage** : data and database storage options for structured or unstructured, relational or non-relational data.
- **Networking** : a service that balances application traffic and provides security rules, among other things.
- **Stackdriver** : a series of cross-cloud logging, monitoring, trace, and other service reliability features.
- **Tools** : service for developers who manage application builds and pipelines.
- **Big Data** : service that allows you to process and analyze large data sets.
- **Artificial Intelligence** : a series of APIs that perform certain artificial intelligence and machine learning tasks on the Google Cloud Platform.

If interested, you can click on this link to learn more about the documentation covering each of the above categories.

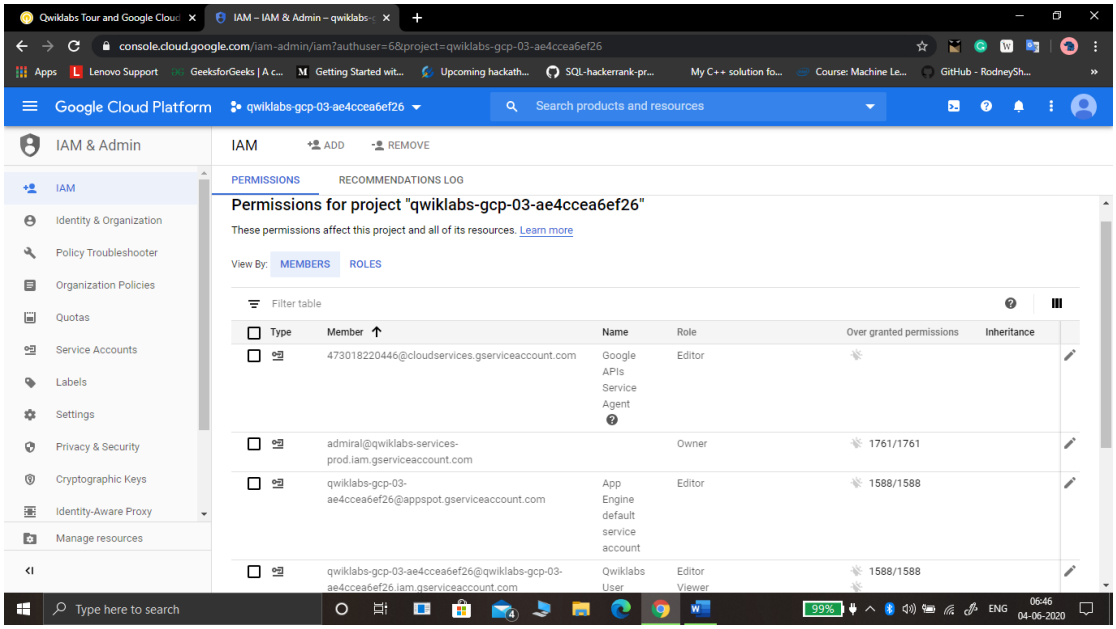
Roles and Permissions

In the future, we have already mentioned that in addition to cloud computing services, GCP also holds a collection of permits and roles that determine who can access resources. We may use the Cloud Identity and Access Management service to check and modify these roles and permissions.

If closed, open the navigation menu. Then, near the very top, click **IAM & admin** . This action will take you to the page that contains the user list, which specifies the permissions and roles given to the particular account. Try finding the username "@qwiklabs" that you used to log in on this page:



The result should look like this:



The **member** column is set to "google23396_student@qwiklabs.net" (the same as the username you use to login) and the **name** column is set to "google23396_student@qwiklabs.net student". You will see the **Roles** column set to "Editor", which is one of the three *basic roles* that GCP has to offer. The basic role is to set project level permissions and, unless otherwise specified, control access and management for all GCP services. The following table takes definitions from the role documentation , which provides a brief summary of the viewer, editor, and owner role permissions:

Role Name	Permission

role / viewer	Permission for read-only actions that do not affect the status, such as displaying (but not modifying) existing resources or data.
role / editor	All viewer permissions, plus permissions for actions that modify the status, such as changing an existing resource.
role / owner	All editor permissions and permissions for the following actions: Manage roles and permissions for a project and all resources in it. Set up billing for a project.

So, as an editor, you can create, modify, and delete GCP resources. However, you cannot add or remove members from the GCP project.

Test your understanding

Answer the following multiple choice questions to strengthen your understanding of the concepts discussed so far.

Offers quick access to the platform's services and also outlines its offerings.

Stackdriver

Networking

Compute

Navigation menu

Submit

Primitive roles set project-level permissions and unless otherwise specified, they control access and management to all GCP services.

False

True

Submit

Provides all viewer permissions, plus permissions for actions that modify state, such as changing existing resources.

Viewer role

Editor role

Owner role

GCP project

Submit

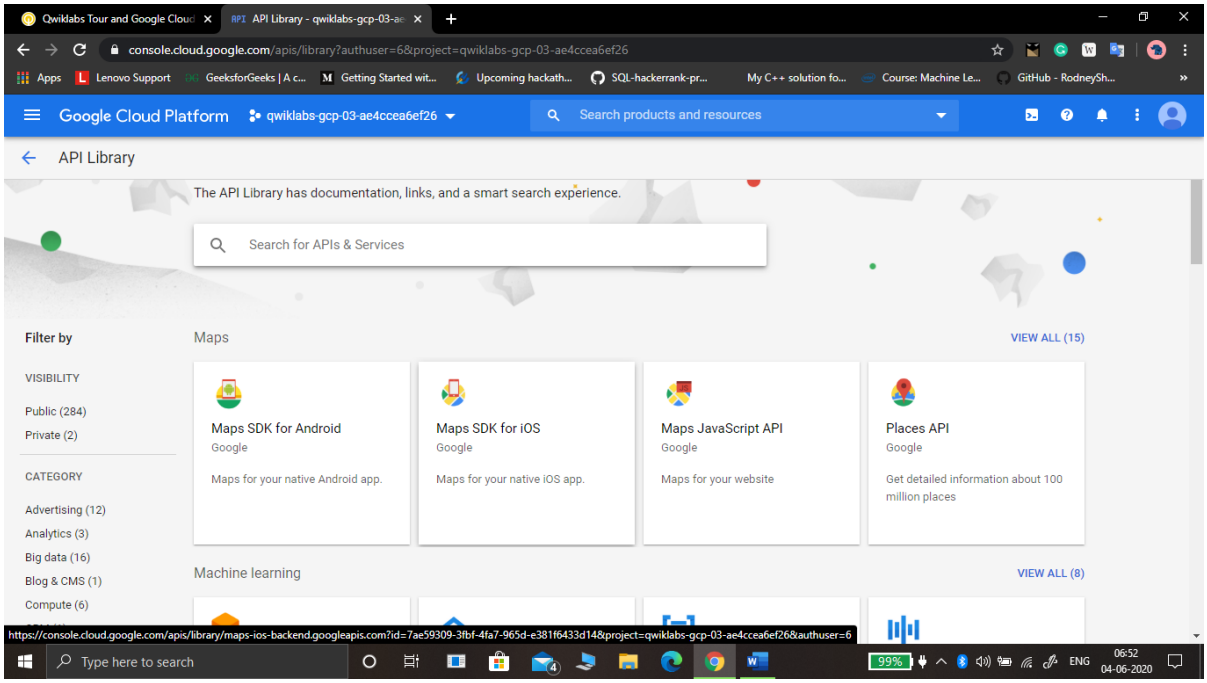
API and Services

The Google Cloud API is a major part of the Google Cloud Platform. As well as services, more than 200 APIs are provided, ranging from business administration to machine learning, all of which are easy to integrate with GCP applications and projects.

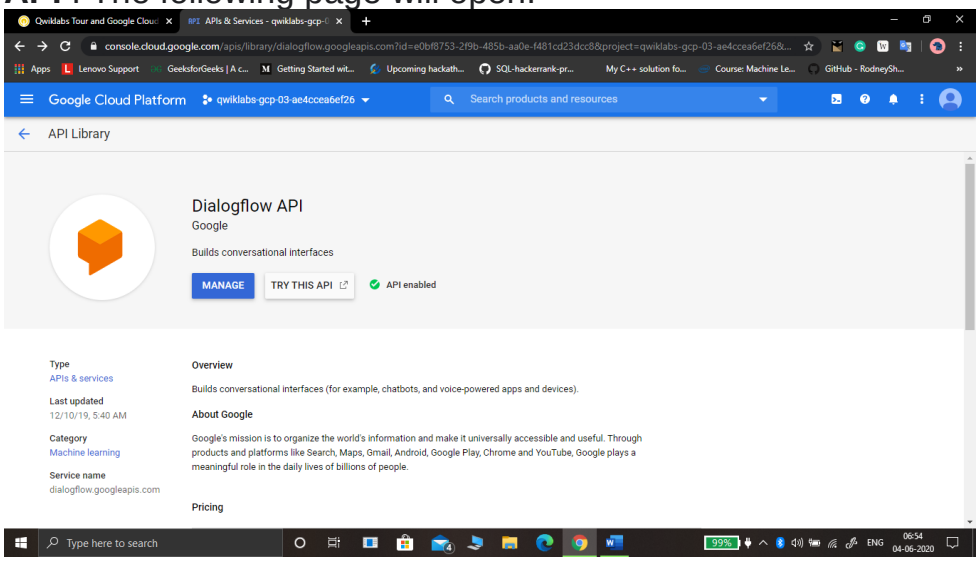
API is an abbreviation for "Application Programming Interface" (Application Programming Interface) that you can call directly or through the client library. Cloud API uses the principles of resource-oriented design as described in the Google API Design Guide .

When providing a new GCP Project, Qwiklabs activates most of the APIs behind the scenes so you can directly handle lab tasks. Please note that when creating your own GCP project outside of Qwiklabs, you must activate certain APIs yourself.

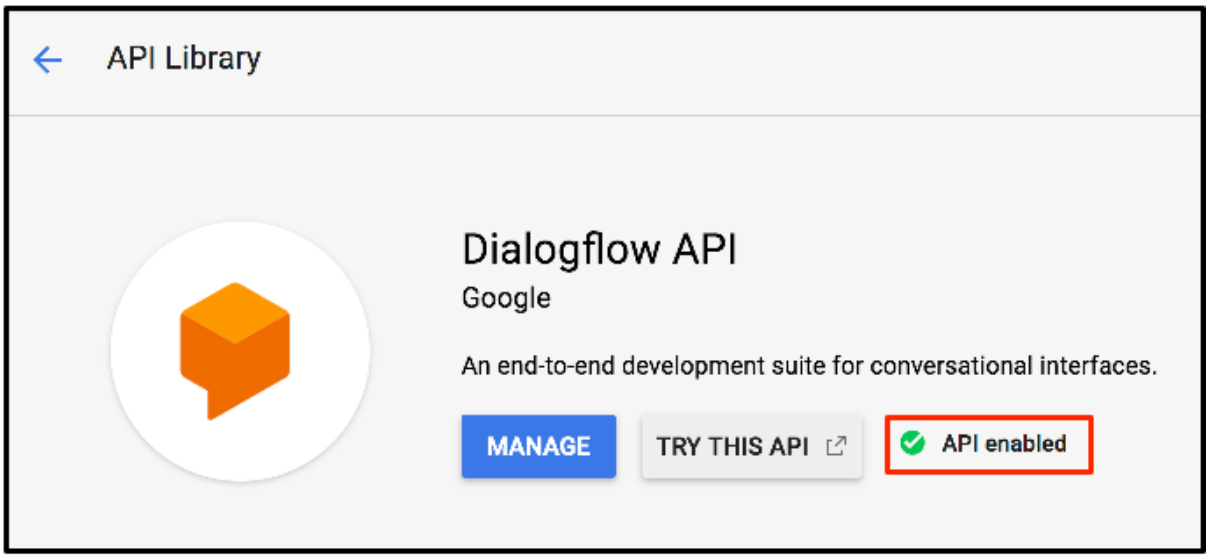
Most Cloud APIs provide detailed information about your project's use of the API, including traffic levels, error rates, and even latency, helping you to quickly resolve problems with applications that use Google services. You can view this information by opening the navigation menu and clicking on **API & Services** > **Library** :



In the menu on the left titled "CATEGORY", you will see all types of categories offered. In the API search box, type Dialogflow and select **Dialogflow API** . The following page will open:



The Dialogflow API allows you to create interactive conversation applications (for example for Google Assistants) without worrying about machine learning and the underlying natural language understanding schemes.
Now click **Activate** . This action will take you to a new page. Press the browser's back button and you will see the API has an active status:



Now click **Try this API** . This will open a new tab that displays the Dialogflow API documentation and determines the methods available to you. Check some of them and close the tab when done.
If you are interested in learning more about APIs, see the new interactive feature in Google Cloud called APIs Explorer . We have also created the APIs Explorer: Qwik Start lab so that you can try the feature directly using a simple example.
Open the navigation menu and click **Home** to return to the GCP Console main page.

Test your understanding

Answer all multiple choice questions to strengthen your understanding of the concepts discussed so far.

When you start a lab in Qwiklabs, you need to enable APIs in your GCP project to start working with GCP.

False

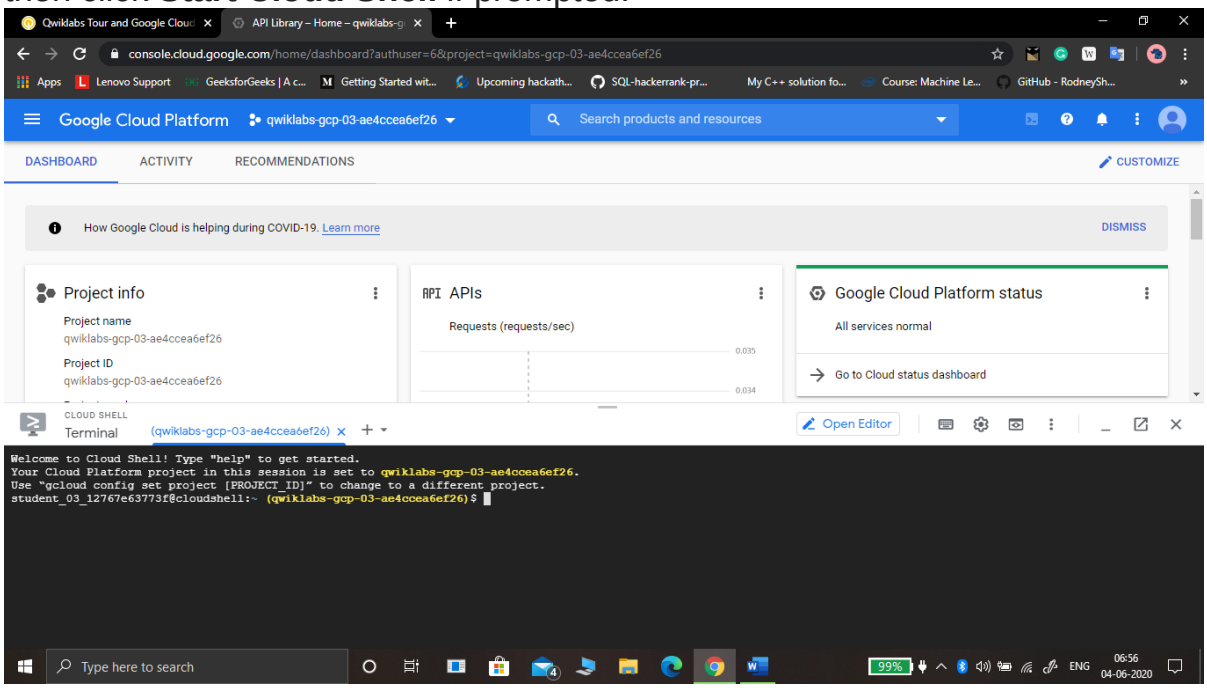
True

Submit

Cloud Shell

After understanding the main features of GCP and the console, you will practice using Cloud Shell directly . Cloud Shell is an in-browser command prompt execution environment that allows you to enter commands at the terminal prompt to manage resources and services in a GCP project.
Cloud Shell allows you to run all shell commands without leaving the console, and has a number of built-in command-line features.

In the top right corner of the console, click the **Enable Cloud Shell** button and then click **Start Cloud Shell** if prompted:



A new black window will appear below the console with messages and commands that look like the following:

```
Welcome to Cloud Shell! Type "help" to get started.
Your Cloud Platform project in this session is set to qwiklabs-gcp-
76ad0f1342e20013.
Use "gcloud config set project [PROJECT_ID]" to change to a different
project.
gcpstaging23396_student@cloudshell:~ (qwiklabs-gcp-76ad0f1342e20013)$
```

Now, your Cloud Shell session is active and running. Copy and paste (or type) the following command into Cloud Shell, then press Enter:

```
gcloud auth list
```

You will see a similar output, `ACTIVE ACCOUNT`which is assigned to your GCP IAM identity (`gcpstagingxxxxx_student@qwiklabs.net`):

```
Credentialed Accounts
ACTIVE  ACCOUNT
*       gcpstaging23396_student@qwiklabs.net
To set the active account, run:
    $ gcloud config set account `ACCOUNT`
```

As mentioned, Cloud Shell comes with a variety of built-in command line features. The main toolkit on GCP is gcloud , which is used to do many tasks on the platform, such as resource management and user authentication.
You have just run the command `gcloud`- auth list - which lists credential accounts in your GCP project. This account name matches the Qwiklabs username that you used to log in to the console.
In addition to the default toolkit, Cloud Shell also features a standard unix command line (CLI) interface and text editors such as nano . We can use this feature to create and edit files directly inside Cloud Shell.
Run the following touch command to create a file called `test.txt`:

```
touch test.txt
```

`touch`will not produce any output. Run the unix ls command to list the files in the current directory:

```
ls
```

You will receive the following output:

```
README-cloudshell.txt  test.txt
```

Now `test.txt`our new file is added to the working directory. Let's edit this file using the nano text editor mentioned earlier. To edit a file, type `nano`followed by the name of the file you want to edit in Cloud Shell:

```
nano test.txt
```

This action will open an empty file with the Nano text editor:

Continue and type a message, for example like the following:

```
GCP dan Qwiklabs memang keren!
```

Finished typing the above line, hold down **CTRL + X** . Next, type **Y** followed by pressing **the Enter key** to save the file with the new message.

Another useful command is cat , which will display the contents of the file. Run the following command to make sure the file has been updated correctly:

```
cat test.txt
```

You will see the following output in the Cloud Shell session:

```
GCP dan Qwiklabs memang keren!
```

And so, you can already create, edit and display file contents in Cloud Shell (all without leaving the browser.)

End the lab