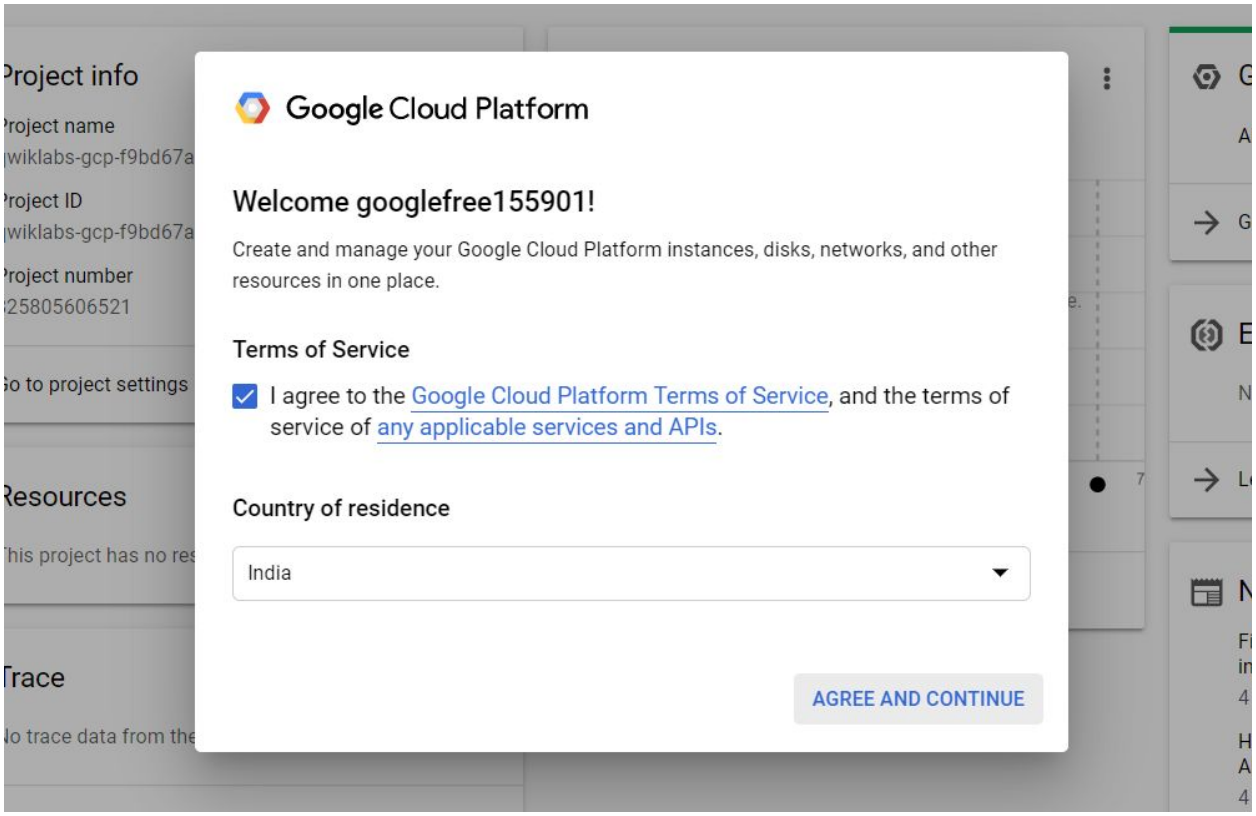
A Tour of the Google Cloud Platform:

When you enters your account details and log in into cloud console you will prompt into a page like this



Overview

The Google Cloud Platform (GCP) is a suite of cloud services hosted on Google's infrastructure. From computing and storage, to data analytics, machine learning, and networking, GCP offers a wide variety of services and APIs that can be integrated with any cloud-computing application or project—be it personal or enterprise-grade.

What you will learn

In this lab, you will do the following:

- Learn about the Qwiklabs platform and identify key features of a lab environment.
- Learn about (and possibly purchase) Qwiklabs credits and launch an instance of a lab.
- Learn how to access the GCP console with specific credentials.
- Learn about GCP projects and identify common misconceptions that surround them.

- Learn how to use the GCP navigation menu to identify types of GCP services.
- Learn about primitive roles and use the Cloud IaM service to inspect actions available to specific users.
- Learn about Cloud Shell and run commands that use the `gcloud` toolkit.
- Learn about the API library and examine its chief features.
- Use tools that are pre-installed in Cloud Shell and run commands like `touch`, `nano`, and `cat` to create, edit, and output the content of files.

GCP Project ID

A GCP Project is an organizing entity for your Google Cloud resources. It often times contains resources and services—for example, it may hold a pool of virtual machines, a set of databases, and a network that connects them with one another. Projects also contain settings and permissions, which specify security rules and who has access to what resources.

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

Projects in the GCP Console

We touched on GCP projects earlier when we examined the components of the "Connection Details" panel. Here's the definition once again:

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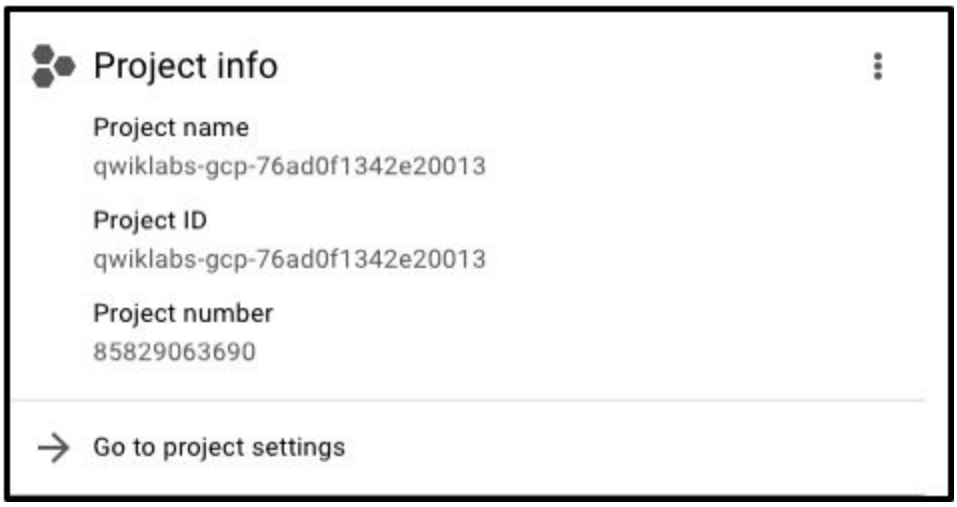
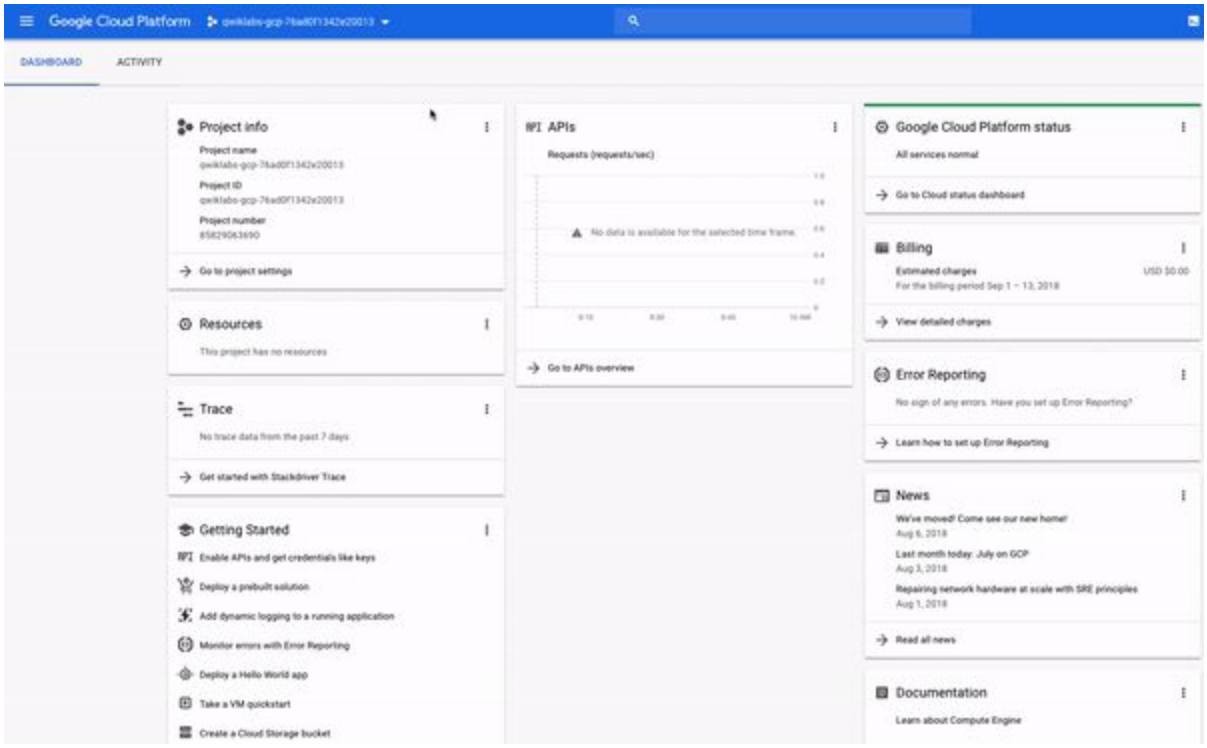
If you look in the top-left side of the console, you will see a panel called **Project info**which should resemble the following:



As you see, your project has a **name**, **ID**, and **number**. These identifiers are frequently used when interacting with GCP services. You are working out of one project so you can get practice with a specific service or feature of GCP.

You probably haven't noticed it, but you actually have access to more than one GCP project. In fact, in some labs you may be provisioned more than one project to accomplish the tasks assigned. If you click on the drop-down menu with your project name and select **ALL**, you will see that there is a "Qwiklabs Resources" project visible as well:



Do not switch over to the Qwiklabs Resources Project at this point! However, you may use it later in other labs.

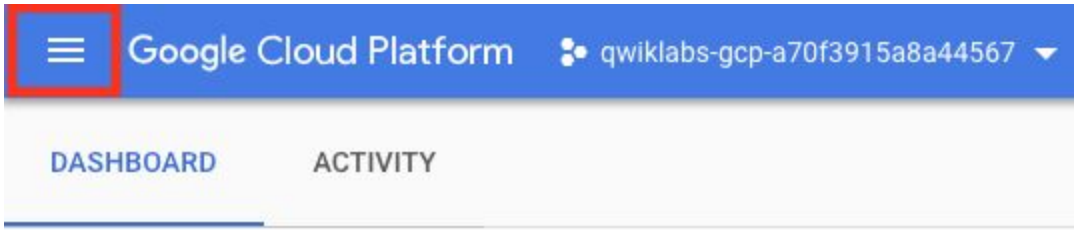
It's not uncommon for large enterprises or experienced users of GCP to have dozens to thousands of GCP projects. Organizations use GCP in different ways, so projects are a good way to separate cloud-computing services (by team or product for example.)

"Qwiklabs Resources" is a project that contains files, datasets, and machine images for certain labs and can be accessed from every GCP lab environment. It's important to note that "Qwiklabs Resources" is shared (read only) with all Qwiklabs users, meaning you won't be able to delete or modify it.

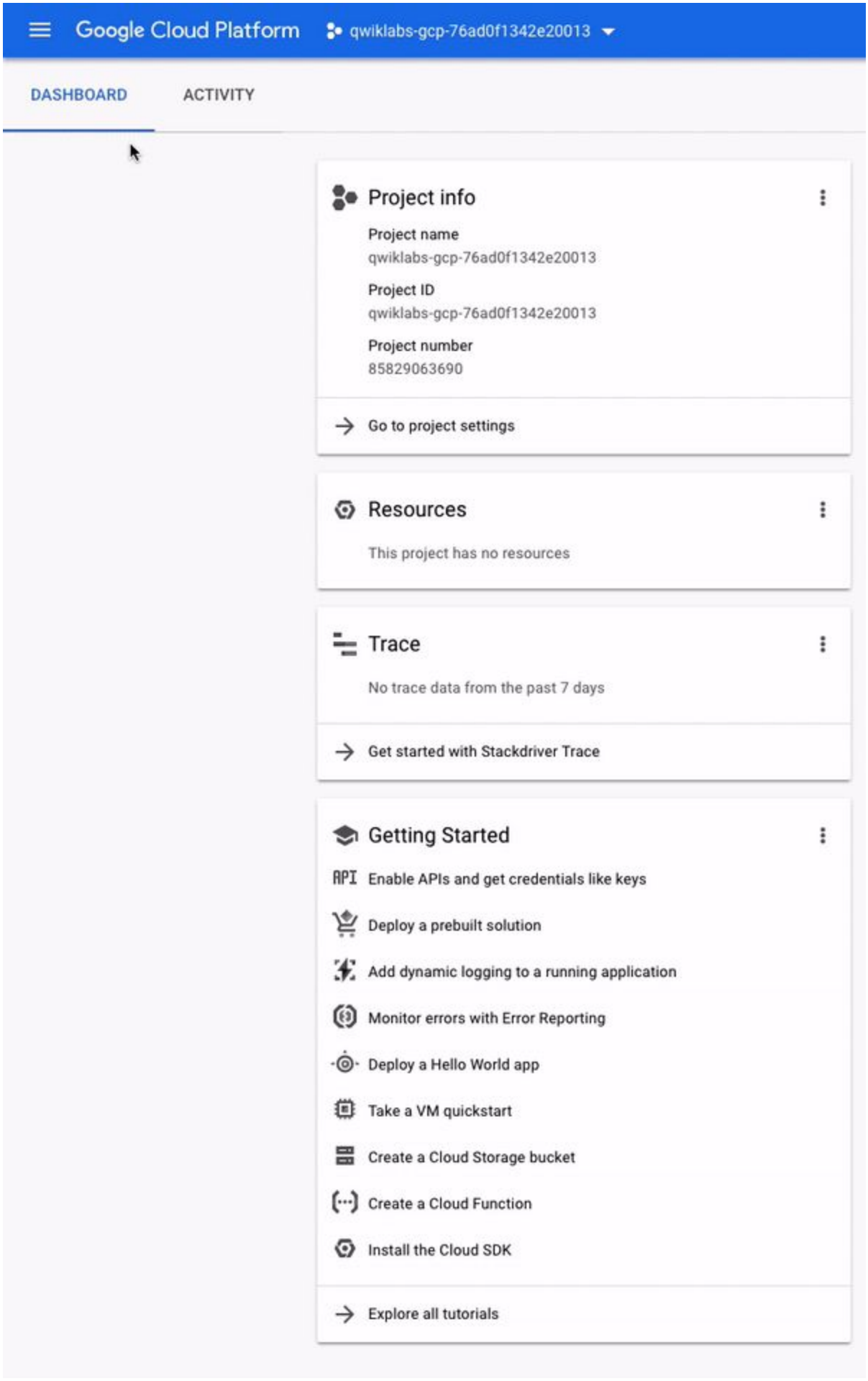
The GCP project that you are working out of and whose name resembles `qwiklabs-gcp-xxx...` is *temporary*, meaning the project and everything it contains will be deleted once the lab ends. Whenever you start a new lab, you will be given access to one or more new GCP project(s), and there (not "Qwiklabs Resources") is where you will run all of the lab steps.

Navigation Menu and Services

In the top-left corner, you will notice a three-line icon that resembles the following:



Clicking on this will reveal (or hide) a **navigation menu** that points to GCP's core services. If the menu isn't exposed, click on the icon now and scroll through to see the types of services offered:


Google Cloud Platform
qwiklabs-gcp-76ad0f1342e20013
DASHBOARD
ACTIVITY
Project info
Project name
qwiklabs-gcp-76ad0f1342e20013
Project ID
qwiklabs-gcp-76ad0f1342e20013
Project number
85829063690
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
Deploy a prebuilt solution
Add dynamic logging to a running application
Monitor errors with Error Reporting
Deploy a Hello World app
Take a VM quickstart
Create a Cloud Storage bucket
Create a Cloud Function
Install the Cloud SDK
Explore all tutorials

The navigation menu is an important component of the GCP console—it offers quick access to the platform's services and also outlines its offerings. If you scroll through the menu, you will see that there are seven categories of GCP services:

- **Compute**: houses a variety of machine types that support any type of workload. The different computing options let you decide how involved you want to be with operational details and infrastructure amongst other things.
- **Storage**: data storage and database options for structured or unstructured, relational or non relational data.
- **Networking**: services that balance application traffic and provision security rules amongst other things.
- **Stackdriver**: a suite of cross-cloud logging, monitoring, trace, and other service reliability tools.
- **Tools**: services for developers managing deployments and application build pipelines.
- **Big Data**: services that allow you to process and analyze large datasets.
- **Artificial Intelligence**: a suite of APIs that run specific artificial intelligence and machine learning tasks on the Google Cloud platform.

This link will take you to documentation that covers each of these categories in more depth if you are interested.

Roles and Permissions

Earlier we mentioned that besides cloud computing services, GCP also houses a collection of permissions and roles that define who has access to what resources. We can use the Cloud Identity and Access Management (IAM) service to inspect and modify such roles and permissions.

If closed, open up the navigation menu. Then near the top click **IAM & admin**. This will take you to a page that contains a list of users, which specifies permissions and roles granted to certain accounts. Try to sift through these and find the "@qwiklabs" username you signed in with:

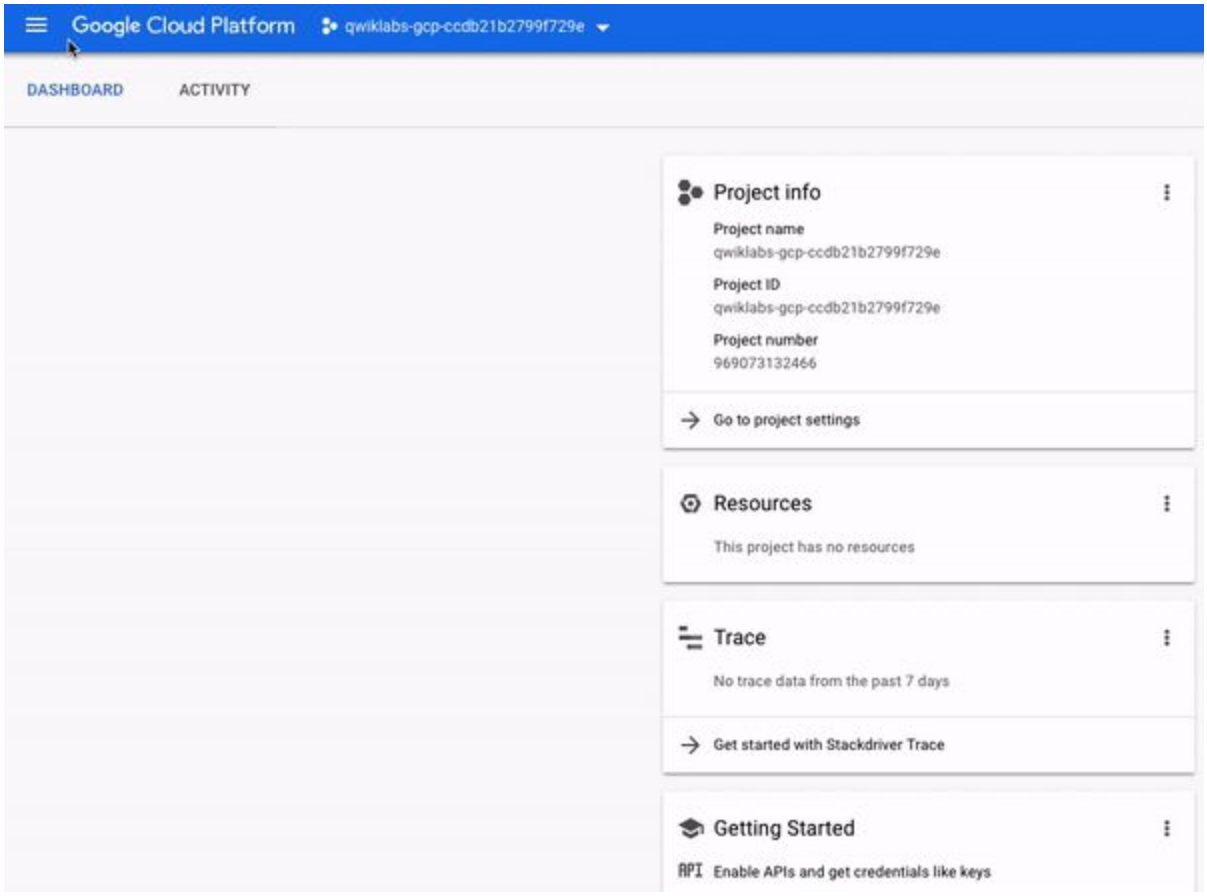
APIs and Services

Google Cloud APIs are a key part of the Google Cloud Platform. Like services, the 200+ APIs in areas that range from business administration to machine learning all easily integrate with GCP projects and applications.

APIs are "Application Programming Interfaces" that you can call directly or via our client libraries. Cloud APIs use resource-oriented design principles as described in our Google API Design Guide.

When Qwiklabs provisions a new GCP Project for a lab instance, it enables most APIs behind the scenes so you can work on the lab's tasks right away. Be aware that when you create your own GCP projects outside of Qwiklabs, you will have to enable certain APIs yourself.

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



If you take a look at the left-hand menu with the header "CATEGORY", you will see all the different type of categories offered. In the API search bar, type in Dialogflow and select the **Dialogflow API**. You should now be on the following page:

Cloud Shell

Now that you understand the key features of GCP and the console, you will get hands-on practice with Cloud Shell. Cloud Shell is an in-browser command prompt execution environment that allows you to enter commands at a terminal prompt to manage resources and services in your GCP project.

Cloud Shell lets you run all of your shell commands without leaving the console and comes with pre-installed command line tools.

In the top-right corner of the console, click on the Activate Cloud Shell button and then click Start Cloud Shell if prompted:

819af82459550c67.png

A new, black window should appear at the bottom of the console with messages and prompts that resemble 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)$

You now have a Cloud Shell session up and running. Copy and paste (or type in) the following into Cloud Shell and hit enter:

gcloud auth list

You should receive see a similar output, where ACTIVE ACCOUNT is set 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 earlier, Cloud Shell comes preinstalled with specific command line tools. The main GCP toolkit is gcloud, which is used for many tasks on the platform, like resource management and user authentication.

You just ran a gcloud command—auth list—which lists the credentialed account(s) in your GCP project. This account name matches the Qwiklabs username you signed in to the console with earlier.

Besides pre-installed toolkits, Cloud Shell also comes with the standard unix command line interface (CLI) tools and text editors like nano. We can use these to create and edit files right inside Cloud Shell.

Run the following touch command to create a file called test.txt:

```
touch test.txt
```

touch won't generate any output. Run the unix command ls to list the files in our current directory:

ls

You should receive the following output:

README-cloudshell.txt test.txt

We see our new test.txt file added to our working directory. Let's make some edits to it using the nano text editor that we referenced earlier. To edit a file, type in nano followed by the filename you want to edit in Cloud Shell:

nano test.txt

This will open the blank file with the Nano text editor:

885a6cb5c1a2d1ab.png

Go ahead and type in a message, like the following:

GCP and Qwiklabs are the best!

Once you have that written in, hold the CNTRL+X keys. Then type in Y followed by the Enter key to save the file with the new message.

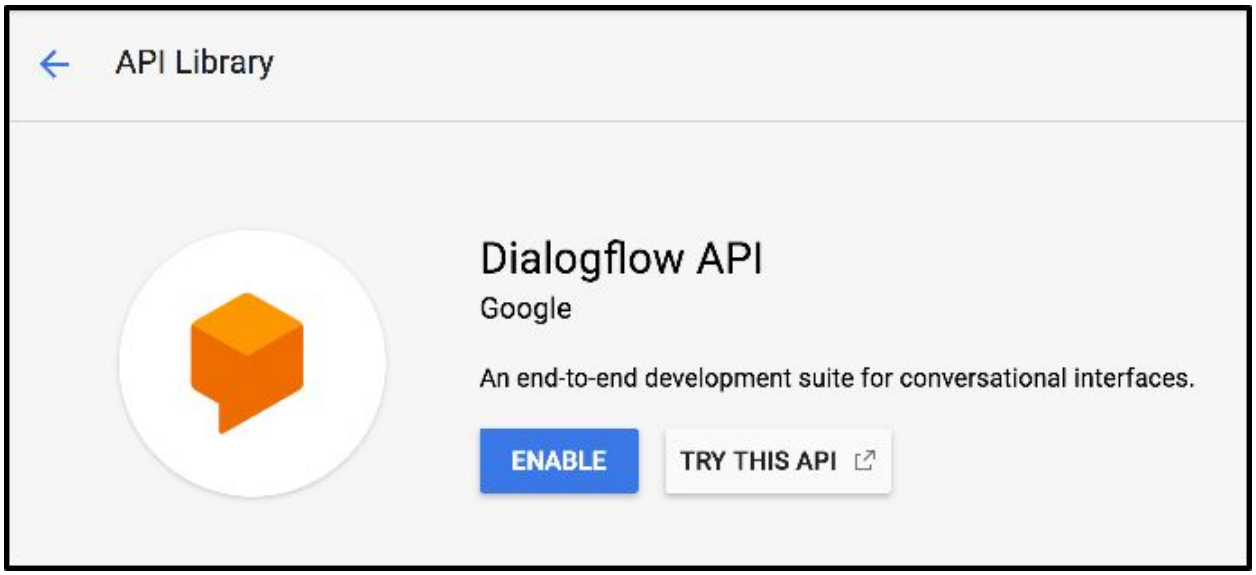
Another helpful command is cat, which will output the contents of a file. Run the following command to make sure that our file was updated correctly:

cat test.txt

You should see the following output in your Cloud Shell session:

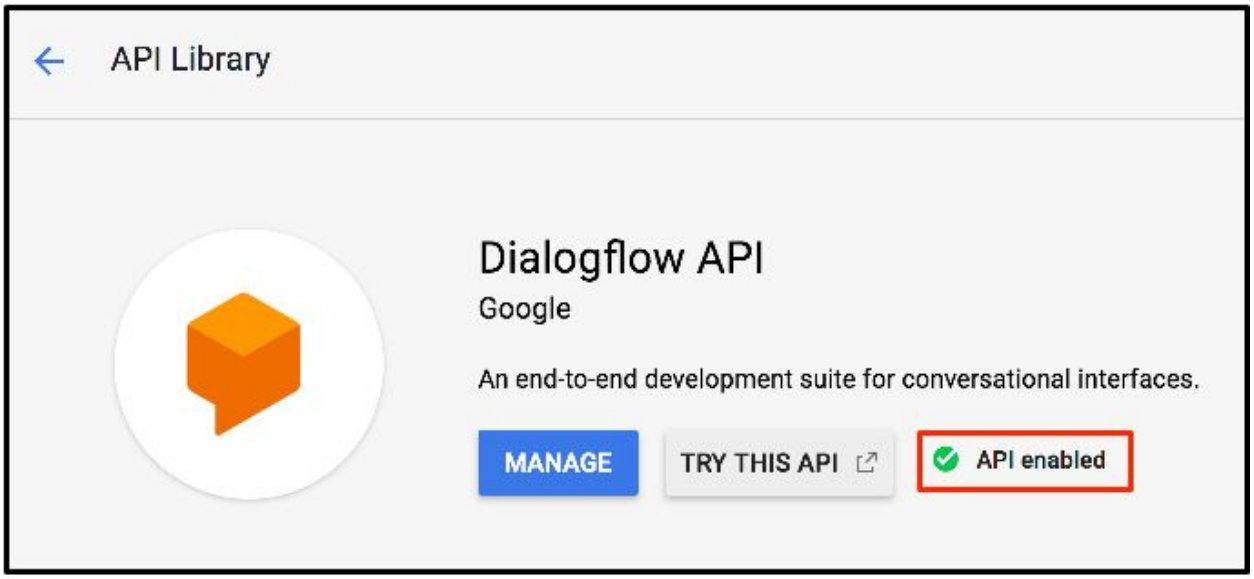
GCP and Qwiklabs are the best!

And just like that, you were able to create, edit, and output the contents of a file all in Cloud Shell (all without having to leave your browser.)



The Dialogflow API allows you to build rich conversational applications (e.g. for Google Assistant) without having to worry about the underlying machine learning and natural language understanding schema.

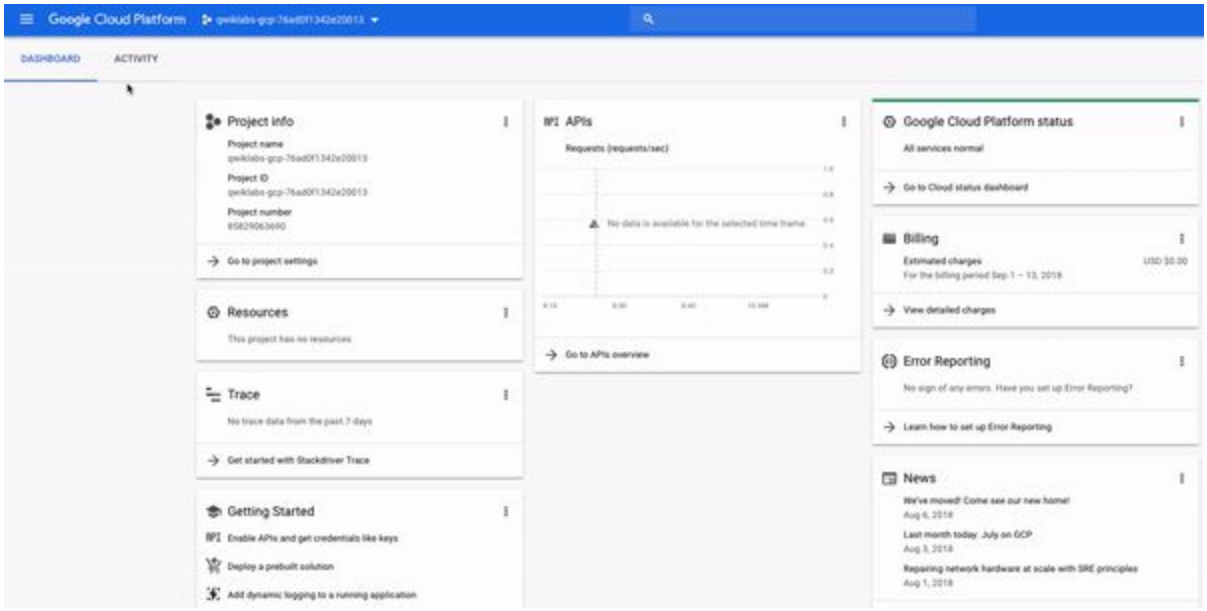
Now click **Enable**. This will take you to a new page, hit the back button in your browser and you will see that the API is now enabled:



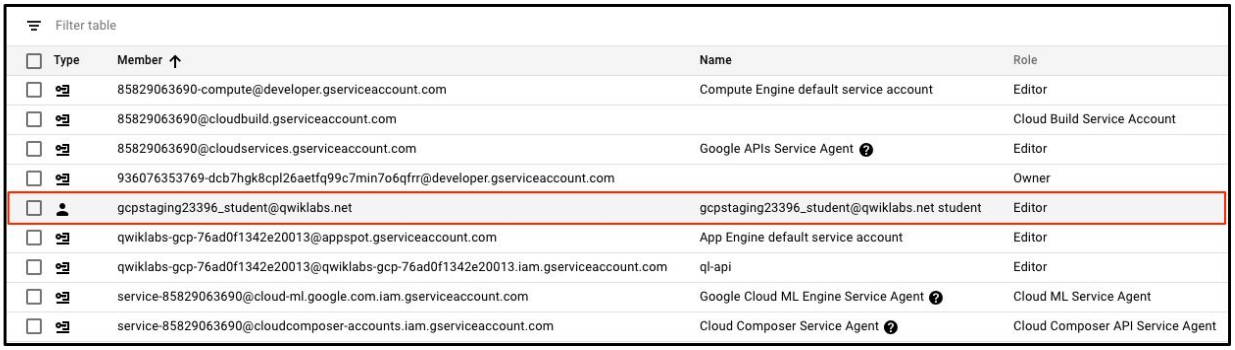
Now click on **Try this API**. This will open a new tab that will reveal the documentation for the Dialogflow API and will specify the methods available to you. Examine some of these and close the tab when you're finished.

If you're interested in learning more about APIs, please see new the new hands-on tool in Google Cloud called APIs Explorer. We've also created a lab APIs Explorer: Qwik Start that will give you hands-on experience with the tool using a simple example.

Open the navigation menu and click **Home** to go back to main page of the GCP console.



You should find something similar:



The **member** field is set to "google23396_student@qwiklabs.net" (which matches the username you logged in with) and the **name** field is set to "google23396_student@qwiklabs.net student". You will see that the **Role** field is set to "Editor", which is one of three *primitive roles* offered by GCP. Primitive roles set project-level permissions and unless otherwise specified, they control access and management to all GCP services.

The following table pulls definitions from the roles documentation, which gives a brief overview of viewer, editor, and owner role permissions:

Role Name	Permissions
roles/viewer	Permissions for read-only actions that do not affect state, such as viewing (but not modifying) existing resources or data.
roles/editor	All viewer permissions, plus permissions for actions that modify state, such as changing existing resources.
roles/owner	All editor permissions and permissions for the following actions: • Manage roles and permissions for a project and all resources within the project. • Set up billing for a project.

So as an editor you will be able to create, modify, and delete GCP resources. However, you won't be able to add or delete members from GCP projects.