

Assignment No 1:

Title: Study the Google Cloud Platform.

Theory:link(<https://cloud.google.com/docs>)
(<https://www.youtube.com/playlist?list=PLlivdWyY5sqIUkH9XhgMkAOylwCN4H0As>)

What Is Cloud Computing?

[Cloud computing](#), in simple words, is accessing and storing data over the Internet instead of doing it on your personal hard drive.

It offers services like [storage](#), database, networking, and more over the Internet to provide faster, innovative, and flexible resources to its customers. The customers get to pay only for the resources they use, hence helping them lower their operating costs and run their business infrastructure more efficiently.

Now, among various cloud providers like AWS, Microsoft, VMWare, IBM, etc., Google Cloud has been the talk of the town in recent years and there are enough reasons behind it. Let's begin with starters and understand what Google Cloud is.

Here is a blog on '[What is cloud computing](#)'.

What Is Google Cloud Platform?

Google Cloud is a suite of Cloud Computing services offered by Google. The platform provides various services like compute, storage, networking, [Big Data](#), and many more that run on the same infrastructure that Google uses internally for its end users like Google Search and YouTube.

Google server hasn't gone down in years. So, if you are planning to run your application on the Google Cloud infrastructure, then you can be assured of your applications being safe and secure.

About Google Cloud services (<https://cloud.google.com/docs/overview/cloud-platform-services>)

This overview introduces some of the commonly used Google Cloud services. For the full list of services, see the [Products and services page](#).

This overview covers the following types of services:

- 1) [Computing and hosting](#)
- 2) [Storage](#)
- 3) [Databases](#)
- 4) [Networking](#)
- 5) [Big data](#)
- 6) [Machine learning](#)

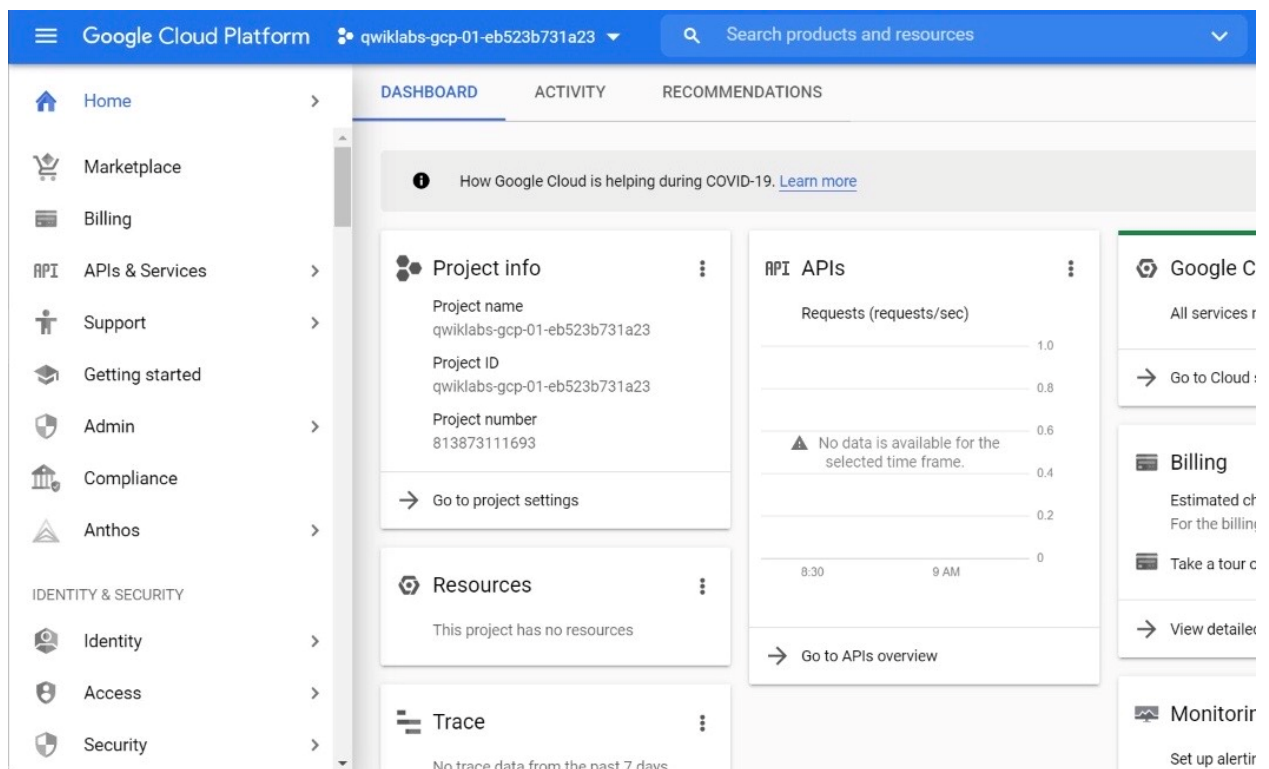
OUT of Google Product you have to study 3 services in detail:

1) Compute (<https://cloud.google.com/docs#section-7>)

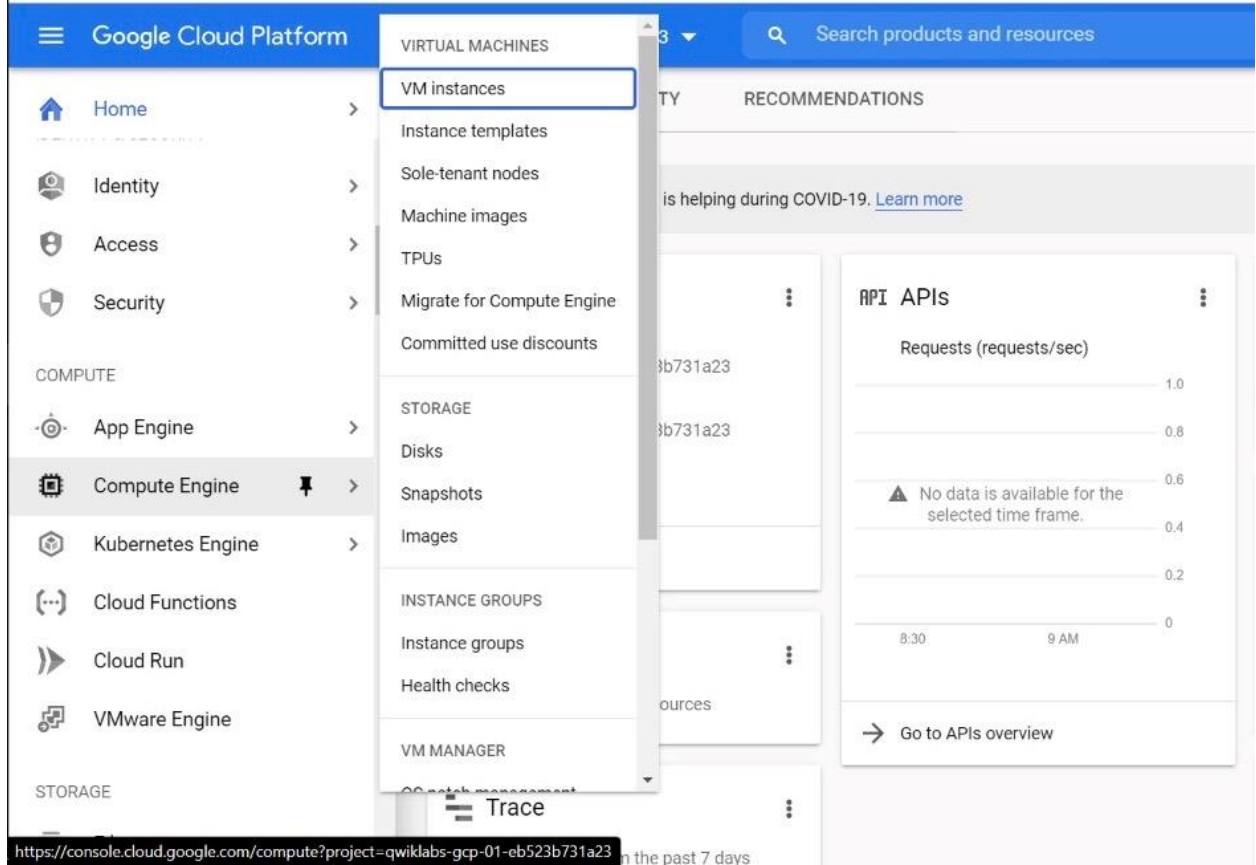
a) In compute write detail steps of how to create a Linux virtual machine instance in Compute Engine using the Google Cloud Console. (Reference: <https://cloud.google.com/compute/docs/quickstart-linux>)

Stepwise Procedure:

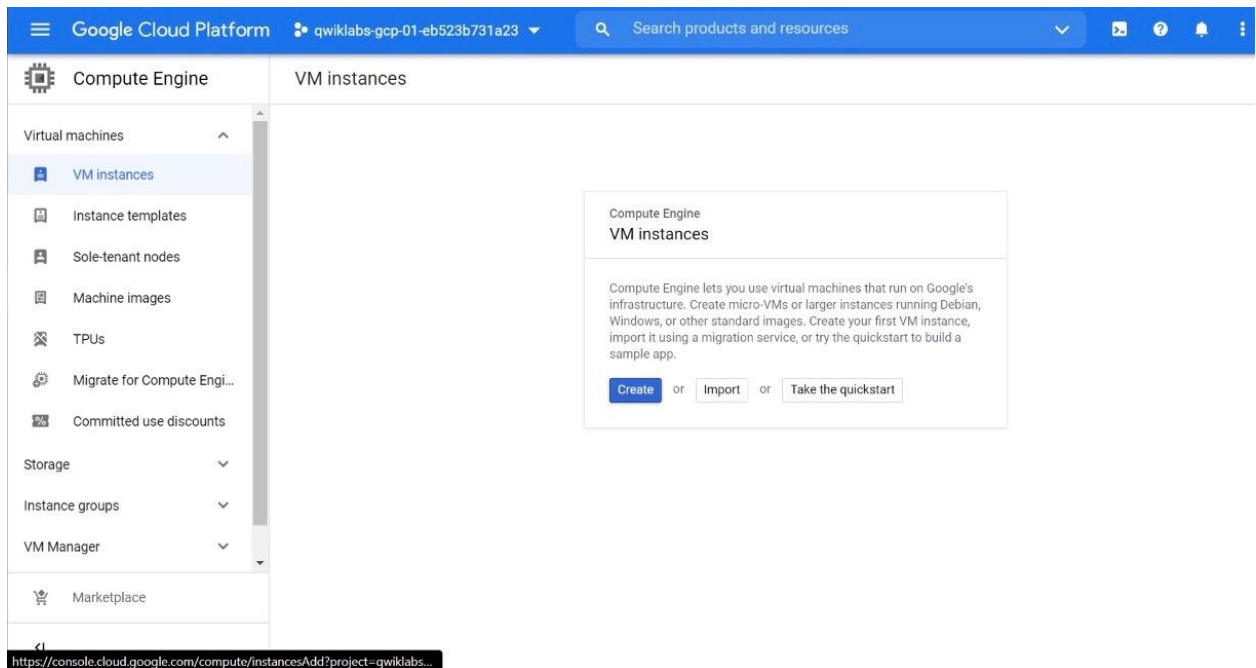
- 1) Visit (<https://cloud.google.com/>) and Sign In to your Google account.
- 2) A cloud console will look like this



- 3) In the cloud console in Navigation menu click on Compute Engine and then click on the VM instances to create a new VM machine. It may take some time load the console.



- 4) To create a new Virtual Machine, click on create button.



- 5) A new form will be in front of you where you can configure many parameters for your virtual machine. For e.g., Name, Region, Zone etc.
- 6) In this case we will create a VM by name “gcelab” which is a permanent name given to the VM.

Google Cloud Platform qwiklabs-gcp-01-eb523b731a23 Search products and resources

← Create an instance

To create a VM instance, select one of the options:

- New VM instance** (selected)
Create a single VM instance from scratch
- New VM instance from template
Create a single VM instance from an existing template
- New VM instance from machine image
Create a single VM instance from an existing machine image
- Marketplace
Deploy a ready-to-go solution onto a VM instance

Name ⓘ
Name is permanent
gcelab

Labels ⓘ (Optional)
+ Add label

Region ⓘ
Region is permanent
us-central1 (Iowa)

Zone ⓘ
Zone is permanent
us-central1-c

Machine configuration

Machine family
General-purpose | Compute-optimized | Memory-optimized | GPU
Machine types for common workloads, optimized for cost and flexibility

Series
N1
Powered by Intel Skylake CPU platform or one of its predecessors

Machine type
n1-standard-2 (2 vCPU, 7.5 GB memory)

vCPU: 2, Memory: 7.5 GB, GPUs: -

× CPU platform and GPU

\$48.95 monthly estimate
That's about \$0.067 hourly
Pay for what you use: No upfront costs and
Details

- 7) Now select the Region, Zone and then configure your machine configuration such as Series, Machine type.

Google Cloud Platform qwiklabs-gcp-01-eb523b731a23 Search products and resources

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- 8) After completing above steps select the Boot Disk for your machine as “Debian GNU/Linux 10 (buster)”.

Google Cloud Platform qwiklabs-gcp-01-eb523b731a23 Search products and resources

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a VM instance

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☒ CPU platform and GPU

Confidential VM service
☐ Enable the Confidential Computing service on this VM instance.

Container
☐ Deploy a container image to this VM instance. [Learn more](#)

Boot disk
New 10 GB standard persistent disk
Image
Debian GNU/Linux 10 (buster) Change

Identity and API access
Service account
Compute Engine default service account

Access scopes
☒ Allow default access
☐ Allow full access to all Cloud APIs
☐ Set access for each API

Google Cloud Platform qwiklabs-gcp-01-eb523b731a23 Search products and resources

Create an instance

a VM instance

Boot disk
Select an image or snapshot to create a boot disk; or attach an existing disk. Can't find what you're looking for? Explore hundreds of VM solutions in Marketplace.

[Public images](#) [Custom images](#) [Snapshots](#) [Existing disks](#)

Operating system
Debian

Version
Debian GNU/Linux 10 (buster)

amd64 built on 20201216, supports Shielded VM features

Boot disk type **Size (GB)**
Standard persistent disk 10

Select Cancel

9) Now check the Allow HTTP traffic checkbox and click the create button to create a VM.

Google Cloud Platform | qwiklabs-gcp-01-eb523b731a23 | Search products and resources

Create an instance

New 10 GB standard persistent disk
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Identity and API access ?

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Firewall ?
Add tags and firewall rules to allow specific network traffic from the Internet

☒ Allow HTTP traffic
☐ Allow HTTPS traffic

☒ Management, security, disks, networking, sole tenancy

You will be billed for this instance. [Compute Engine pricing](#)

[Create](#) [Cancel](#)

Equivalent REST or command line

10) As you can see our new VM is now created and we can access after installing the nginx web server with the External IP address given to us.
To install nginx web server open command shell and type the following command.
Command to Install nginx – “sudo apt install nginx”

Google Cloud Platform | qwiklabs-gcp-01-eb523b731a23 | Search products and resources

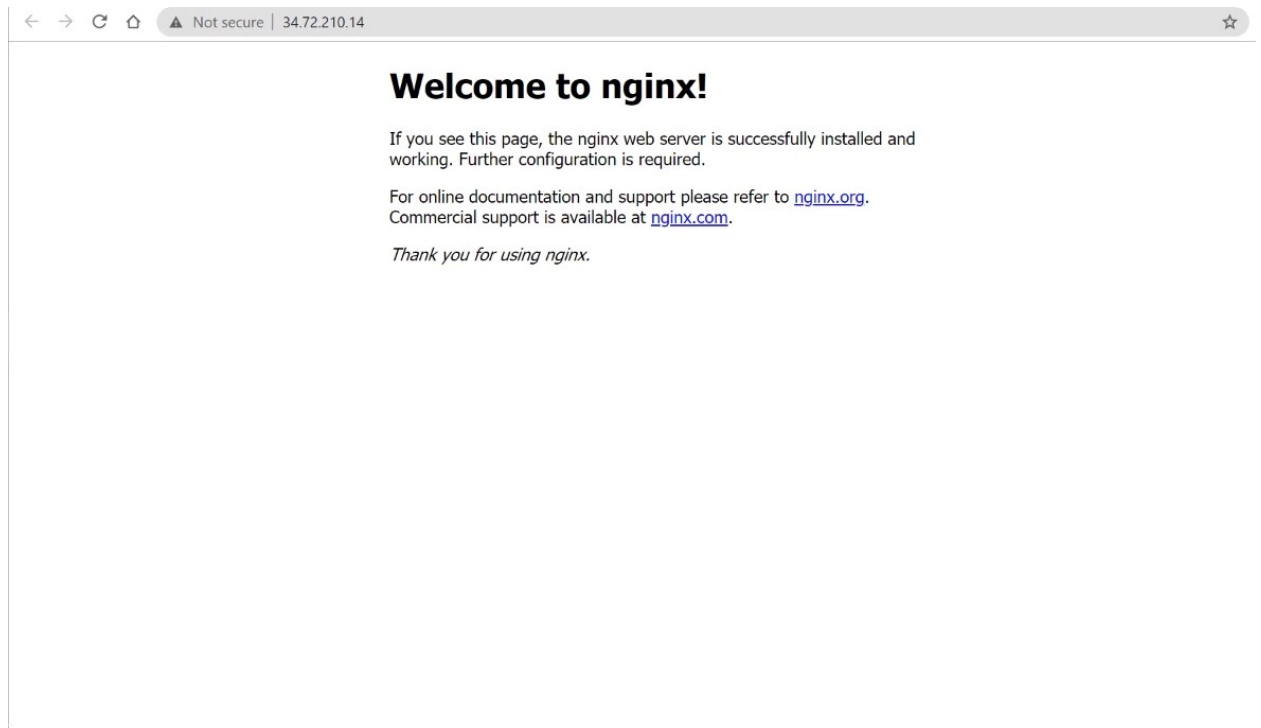
Compute Engine

VM instances

Filter VM instances

Name	Zone	Recommendation	In use by	Internal IP	External IP	Connect
<input checked="" type="checkbox"/> gcelab	us-central1-c			10.128.0.2 (nic0)	34.72.210.14	SSH

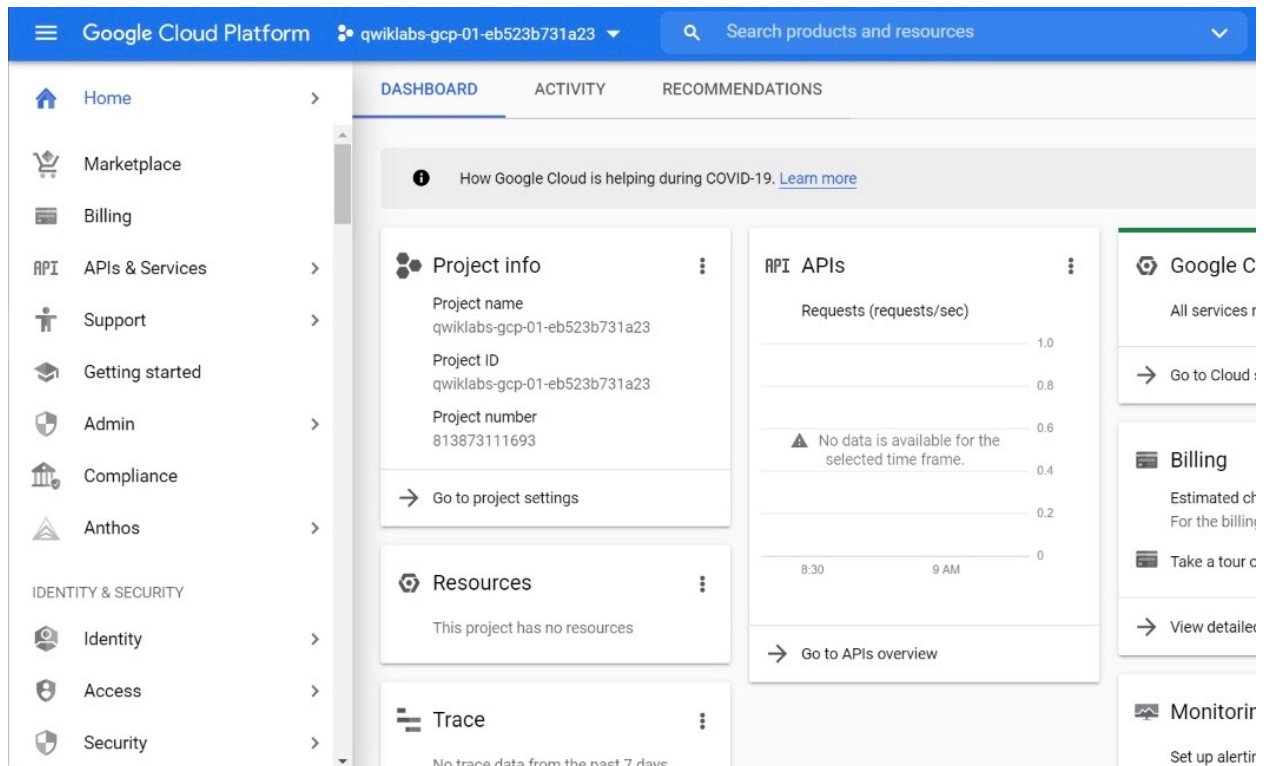
11) As we can see our VM is now created and we can use it.



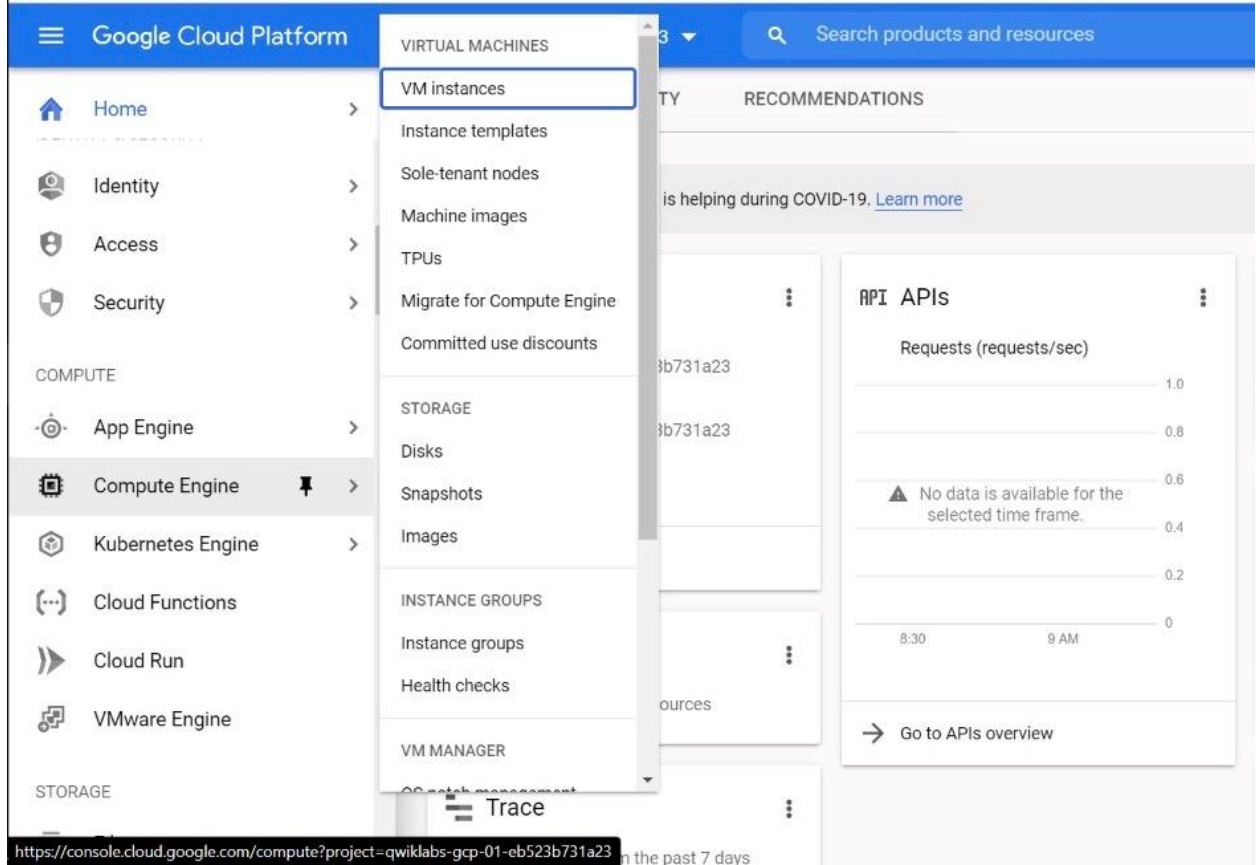
- b) Write detail steps for Deploy a simple Apache web server to learn the basics of running a server on a virtual machine instance. (Reference: <https://cloud.google.com/compute/docs/tutorials/basic-webserver-apache>)

Stepwise Procedure:

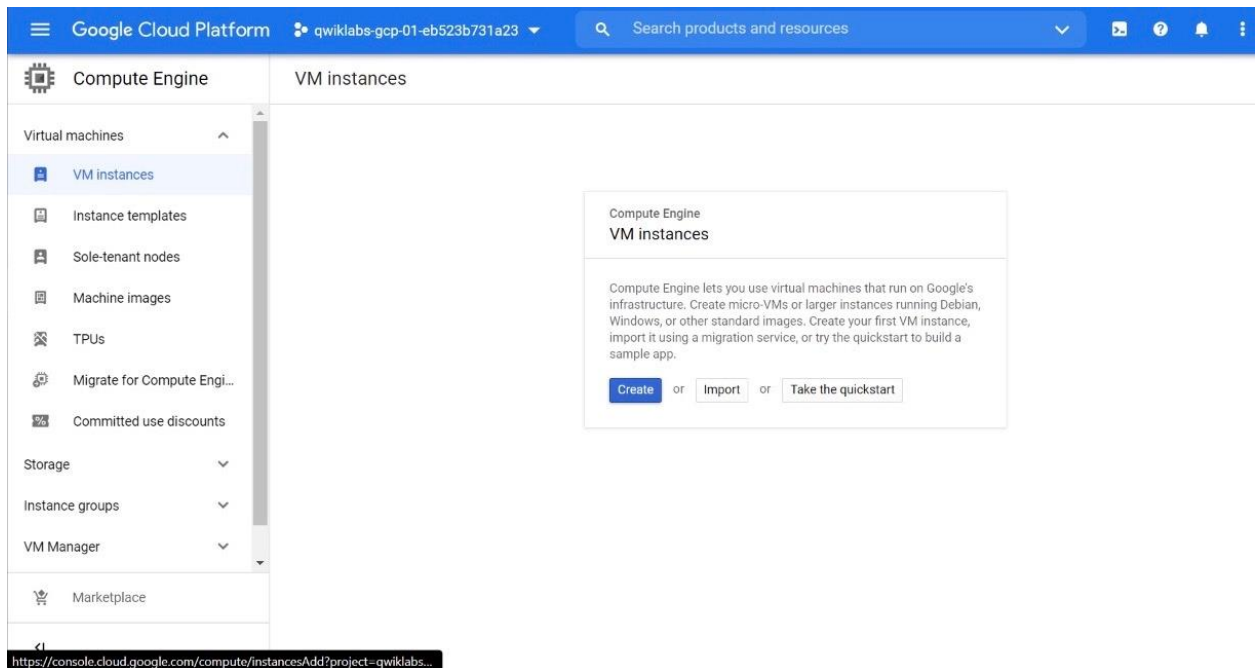
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Name ⓘ
Name is permanent
gcelab

Labels ⓘ (Optional)
+ Add label

Region ⓘ
Region is permanent
us-central1 (Iowa)

Zone ⓘ
Zone is permanent
us-central1-c

Machine configuration

Machine family
General-purpose | Compute-optimized | Memory-optimized | GPU
Machine types for common workloads, optimized for cost and flexibility

Series
N1
Powered by Intel Skylake CPU platform or one of its predecessors

Machine type
n1-standard-2 (2 vCPU, 7.5 GB memory)

vCPU	Memory	GPUs
2	7.5 GB	-

× CPU platform and GPU

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[Details](#)

- 7) Now select the Region, Zone and then configure your machine configuration such as Series, Machine type.

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Create an instance

a VM instance

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Confidential VM service
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Boot disk
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Image
Debian GNU/Linux 10 (buster) Change

Identity and API access
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Google Cloud Platform qwiklabs-gcp-01-eb523b731a23 Search products and resources

Create an instance

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Boot disk type **Size (GB)**
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Create an instance

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Compute Engine

VM instances

Filter VM instances

Name	Zone	Recommendation	In use by	Internal IP	External IP	Connect
gcelab	us-central1-c			10.128.0.2 (nic0)	34.72.210.14	SSH

11) Now click on the “SSH” option to connect to the recently created machine. A command shell will be opened.

12) In the console use this command to deploy a simple Apache web server
“sudo apt update && sudo apt -y install apache2”


```
Linux gcelab 4.19.0-13-cloud-amd64 #1 SMP Debian 4.19.160-2 (2020-11-28) x86_64

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Creating directory '/home/student-03-68b9526db4eb'.
student-03-68b9526db4eb@gcelab:~$ sudo apt update && sudo apt -y install apache2

Setting up libperl5.28:amd64 (5.28.1-6+deb10u1) ...
Setting up liblua5.2-0:amd64 (5.2.4-1.1+b2) ...
Setting up apache2-data (2.4.38-3+deb10u4) ...
Setting up libxml2:amd64 (2.9.4+dfsg1-7+deb10u1) ...
Setting up libaprutil1:amd64 (1.6.1-4) ...
Setting up libaprutil1-ldap:amd64 (1.6.1-4) ...
Setting up libaprutil1-dbd-sqlite3:amd64 (1.6.1-4) ...
Setting up perl (5.28.1-6+deb10u1) ...
Setting up apache2-utils (2.4.38-3+deb10u4) ...
Setting up apache2-bin (2.4.38-3+deb10u4) ...
Setting up apache2 (2.4.38-3+deb10u4) ...
Enabling module mpm_event.
Enabling module authz_core.
Enabling module authz_host.
Enabling module authn_core.
Enabling module auth_basic.
Enabling module access_compat.
Enabling module authn_file.
Enabling module authz_user.
Enabling module alias.
Enabling module dir.
Enabling module autoindex.
Enabling module env.
Enabling module mime.
Enabling module negotiation.
Enabling module setenvif.
Enabling module filter.
Enabling module deflate.
Enabling module status.
Enabling module reqtimeout.
Enabling conf charset.
Enabling conf localized-error-pages.
Enabling conf other-vhosts-access-log.
Enabling conf security.
Enabling conf serve-cgi-bin.
Enabling site 000-default.
Created symlink /etc/systemd/system/multi-user.target.wants/apache2.service → /lib/systemd/system/apache2.service.
Created symlink /etc/systemd/system/multi-user.target.wants/apache-htcacheclean.service → /lib/systemd/system/apache-htcacheclean.service.
Processing triggers for systemd (241-7-deb10u5) ...
Processing triggers for man-db (2.8.5-2) ...
Processing triggers for libc-bin (2.28-10) ...
student-03-68b9526db4eb@gcelab:~$
```

13) Now come back to the console and click on the “External IP” address to visit the VM.



Apache2 Debian Default Page

It works!

This is the default welcome page used to test the correct operation of the Apache2 server after installation on Debian systems. If you can read this page, it means that the Apache HTTP server installed at this site is working properly. You should **replace this file** (located at `/var/www/html/index.html`) before continuing to operate your HTTP server.

If you are a normal user of this web site and don't know what this page is about, this probably means that the site is currently unavailable due to maintenance. If the problem persists, please contact the site's administrator.

Configuration Overview

Debian's Apache2 default configuration is different from the upstream default configuration, and split into several files optimized for interaction with Debian tools. The configuration system is **fully documented in `/usr/share/doc/apache2/README.Debian.gz`**. Refer to this for the full documentation. Documentation for the web server itself can be found by accessing the **manual** if the `apache2-doc` package was installed on this server.

The configuration layout for an Apache2 web server installation on Debian systems is as follows:

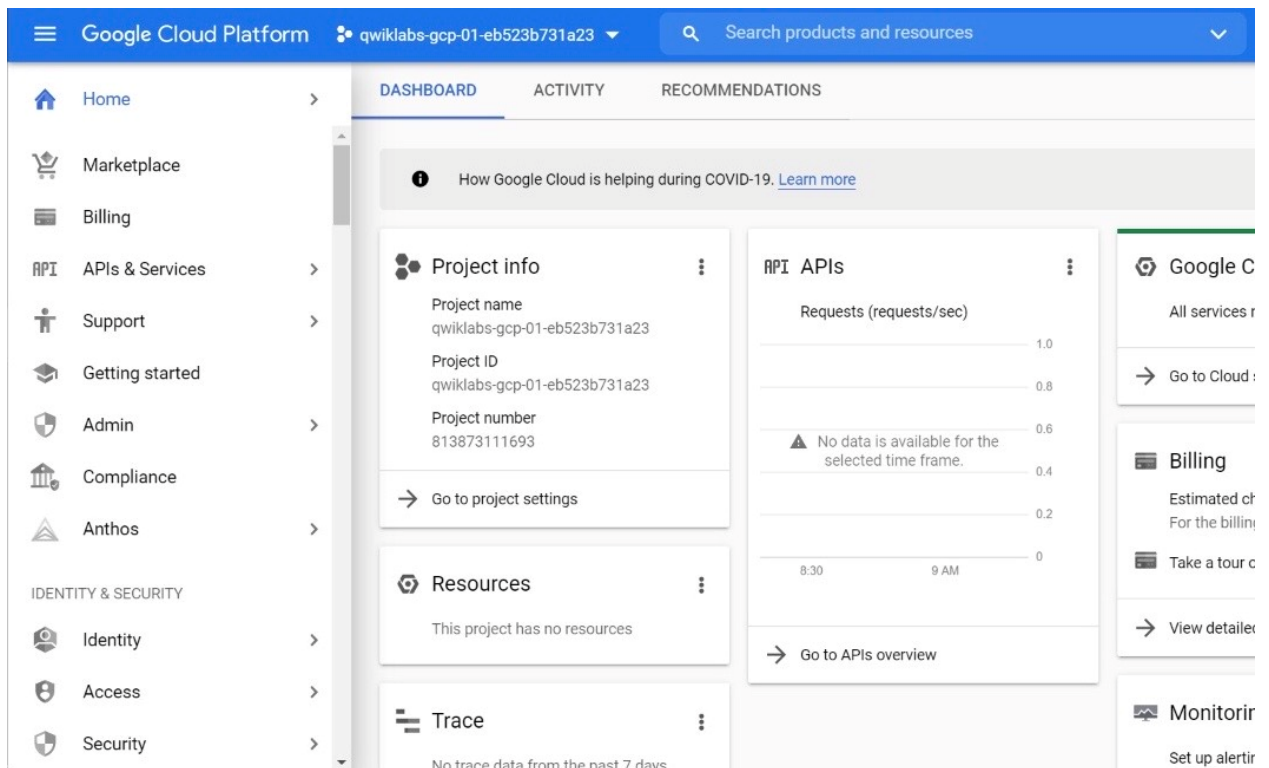
```
/etc/apache2/
|-- apache2.conf
/
  |-- ports.conf
|-- mods-enabled
/
  |-- *.Load
  |-- *.conf
|-- conf-enabled
/
  |-- *.conf
|-- sites-enabled
/
  |-- *.conf
```

a. Google App Engine (Ref: <https://cloud.google.com/appengine/docs>)

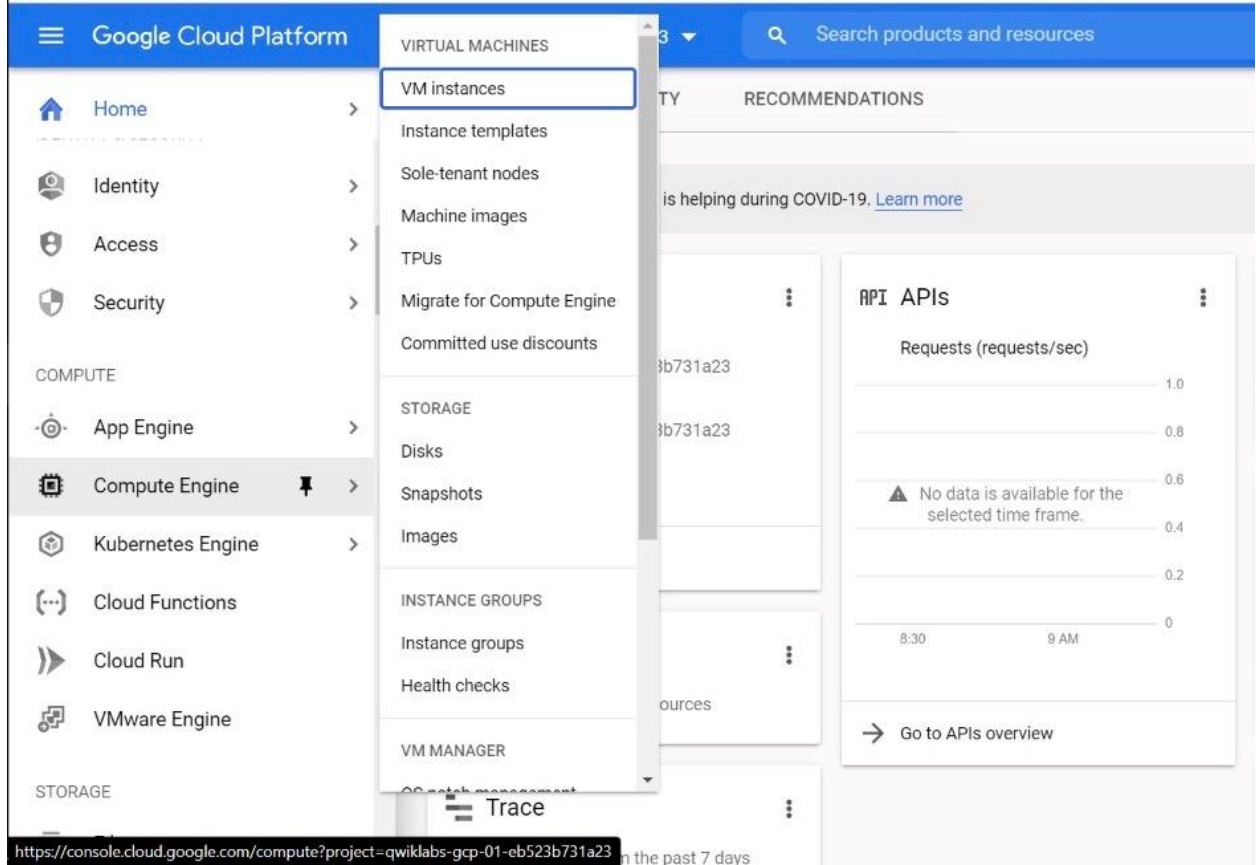
- **Google Cloud: Creating a Virtual Machine**

Stepwise Procedure:

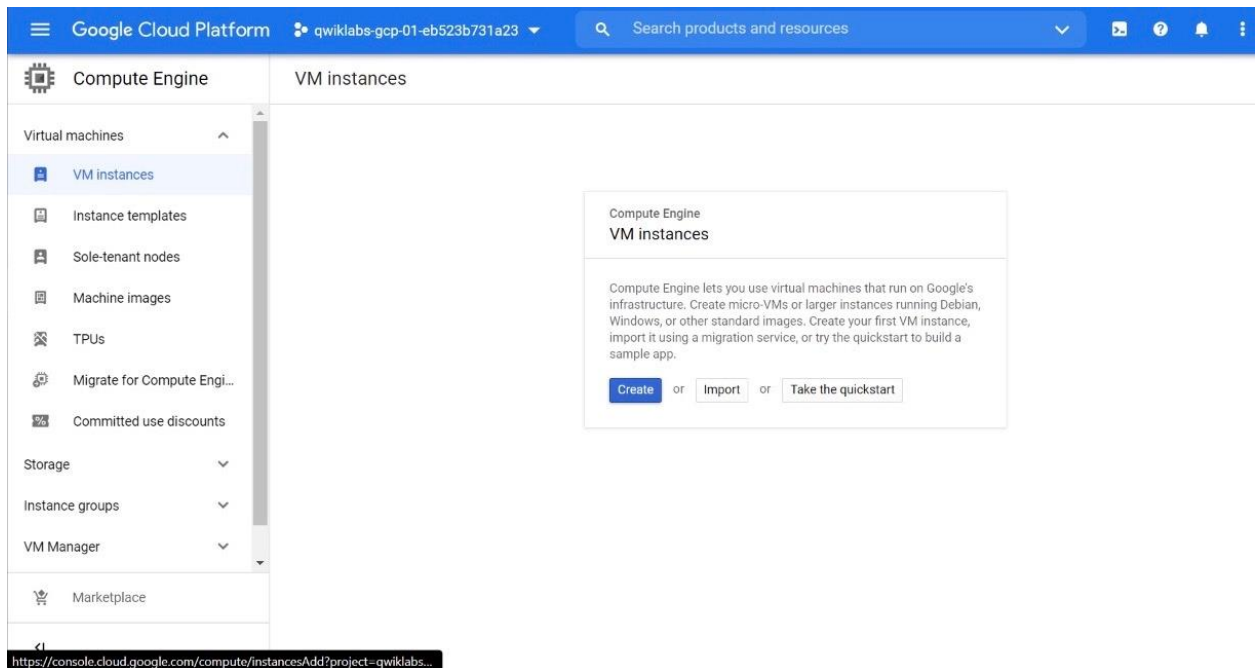
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Deploy a ready-to-go solution onto a VM instance

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Name is permanent
gcelab

Labels ⓘ (Optional)
+ Add label

Region ⓘ
Region is permanent
us-central1 (Iowa)

Zone ⓘ
Zone is permanent
us-central1-c

Machine configuration

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Machine type
n1-standard-2 (2 vCPU, 7.5 GB memory)

vCPU: 2, Memory: 7.5 GB, GPUs: -

× CPU platform and GPU

\$48.95 monthly estimate
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[Management, security, disks, networking, sole tenancy](#)

You will be billed for this instance. [Compute Engine pricing](#)

[Create](#) [Cancel](#)

Equivalent REST or command line

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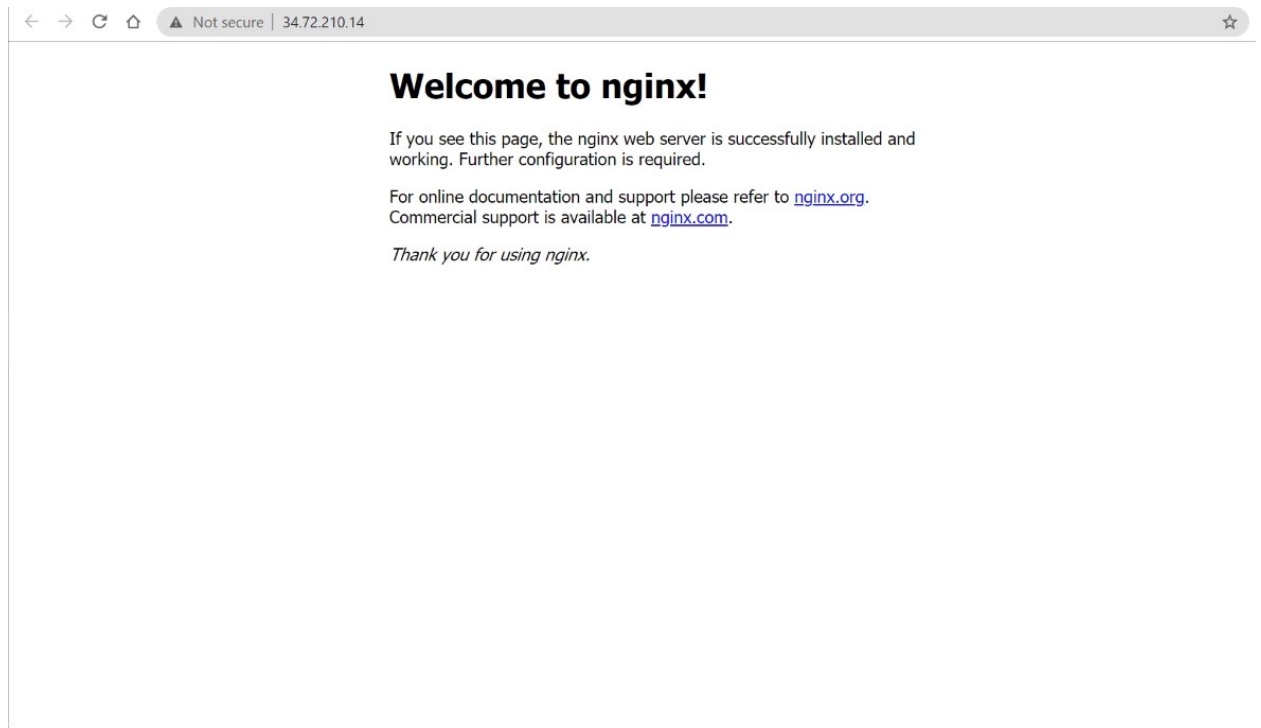
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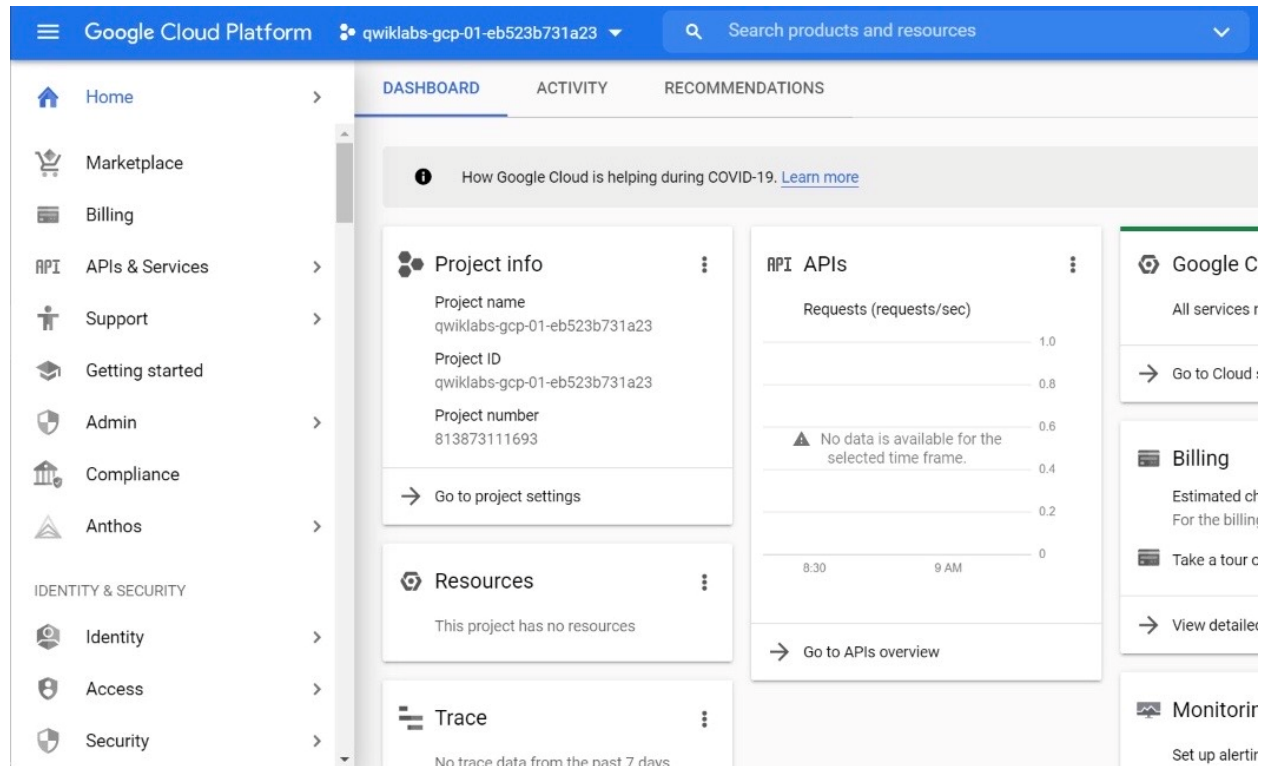
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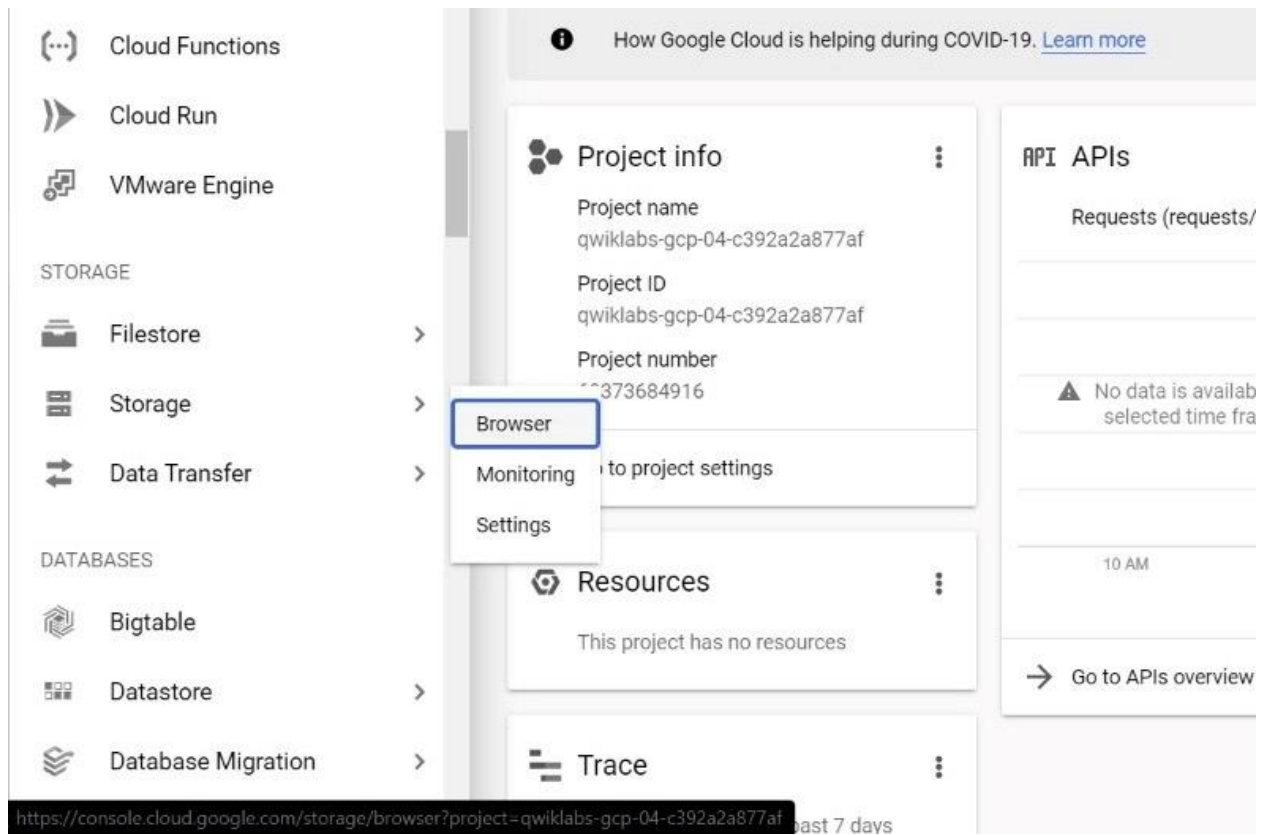
- **Google Cloud Storage: Creating a Bucket**

Stepwise Procedure:

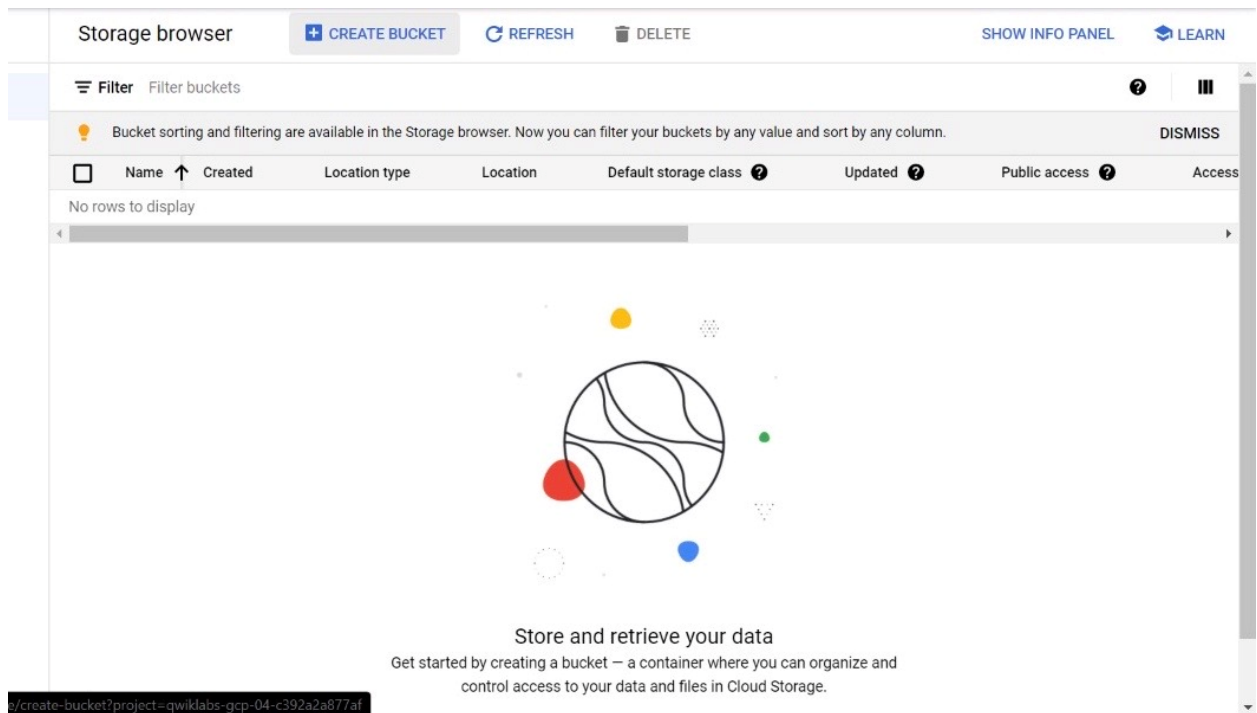
- 1) Visit (<https://cloud.google.com/>) and Sign In to your Google account.
- 2) A Google Cloud console will look like as shown in the picture.



- 3) Now click on the Navigation menu and search for Storage and then click on the Browser.



- 4) A storage browser page will be opened. Now click on the CREATE BUCKET button to create a new Bucket.



- 5) A new form will open which will ask for some details for your bucket.
For e.g., Name, Location Type etc.

- 6) Give your bucket a name which is globally unique. If you want to know more about naming guidelines click on the “Naming guidelines” link.

✓ Name your bucket

• Choose where to store your data

This permanent choice defines the geographic placement of your data and affects cost, performance, and availability. [Learn more](#)

Location type

- ☐ Region
Lowest latency within a single region
- ☐ Dual-region
High availability and low latency across 2 regions
- ☒ Multi-region
Highest availability across largest area

Location

us (multiple regions in United States) ▼

CONTINUE

• Choose a default storage class for your data

7) Now select the “Location Type” for your bucket in my case I am selecting “Multi-region” bucket and then click on Continue button.

✓ Name your bucket

• Choose where to store your data

This permanent choice defines the geographic placement of your data and affects cost, performance, and availability. [Learn more](#)

Location type

- ☐ Region
Lowest latency within a single region
- ☐ Dual-region
High availability and low latency across 2 regions
- ☒ Multi-region
Highest availability across largest area

Location

us (multiple regions in United States) ▼

CONTINUE

• Choose a default storage class for your data

8) Keep rest of the settings as default settings and click on Create button to create a new Bucket.

← Create a bucket ESTIMATE COST

Choose where to store your data

- **Choose a default storage class for your data**
A storage class sets costs for storage, retrieval, and operations. Pick a default storage class based on how long you plan to store your data and how often it will be accessed. [Learn more](#)
 - ☒ **Standard** ?
Best for short-term storage and frequently accessed data
 - ☐ **Nearline**
Best for backups and data accessed less than once a month
 - ☐ **Coldline**
Best for disaster recovery and data accessed less than once a quarter
 - ☐ **Archive**
Best for long-term digital preservation of data accessed less than once a year

[CONTINUE](#)

- **Choose how to control access to objects**
- **Advanced settings (optional)**

[CREATE](#) [CANCEL](#)

9) As you can see our bucket “mynavigationbucket” is now created and we can use it to store our data on the Google Cloud.

Storage browser [+ CREATE BUCKET](#) [DELETE](#) [REFRESH](#) [SHOW INFO PANEL](#)

[Filter](#) Filter buckets ? |||

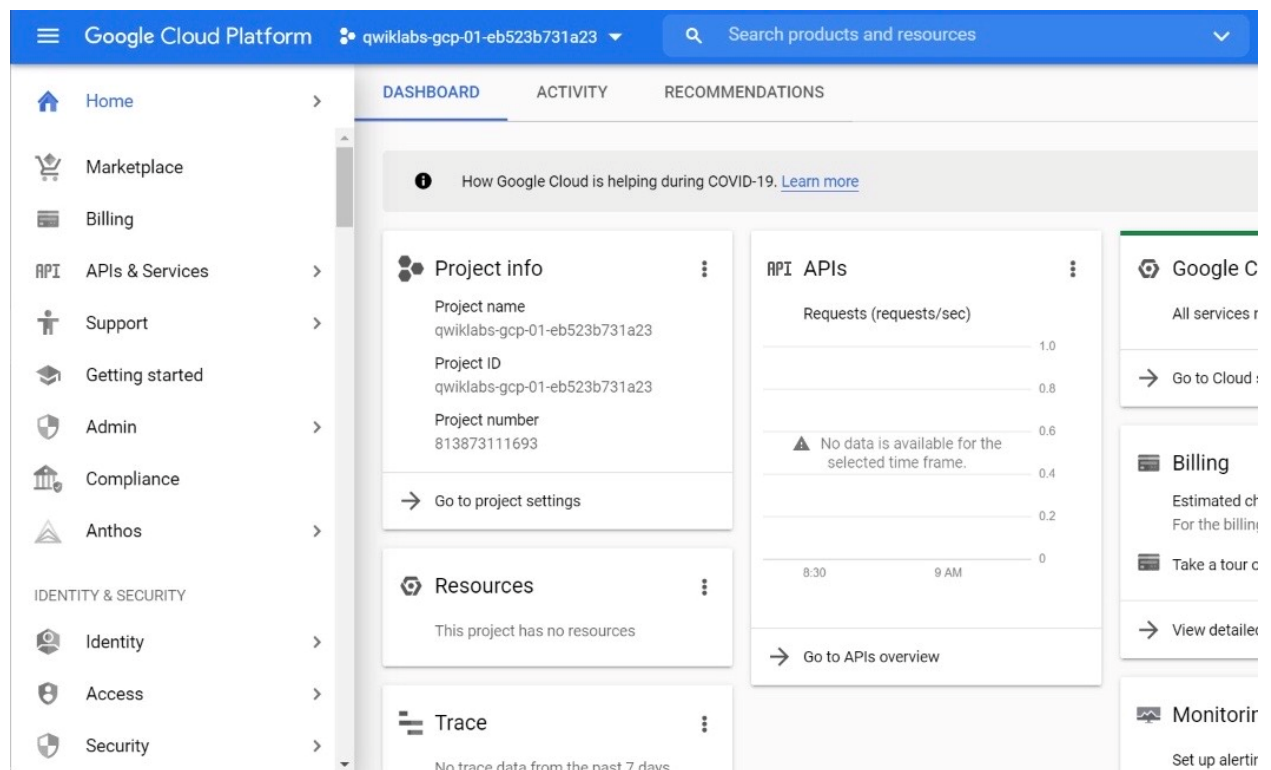
💡 Bucket sorting and filtering are available in the Storage browser. Now you can filter your buckets by any value and sort by any column. [DISMISS](#)

<input type="checkbox"/>	Name ↑	Created	Location type	Location	Default storage class ?	Updated ?	
<input type="checkbox"/>	mynavigationbucket	Jan 12, 2021, 10:46:07 AM	Multi-region	us (multiple re...	Standard	Jan 12, 2021, 10:46:07 A	⋮

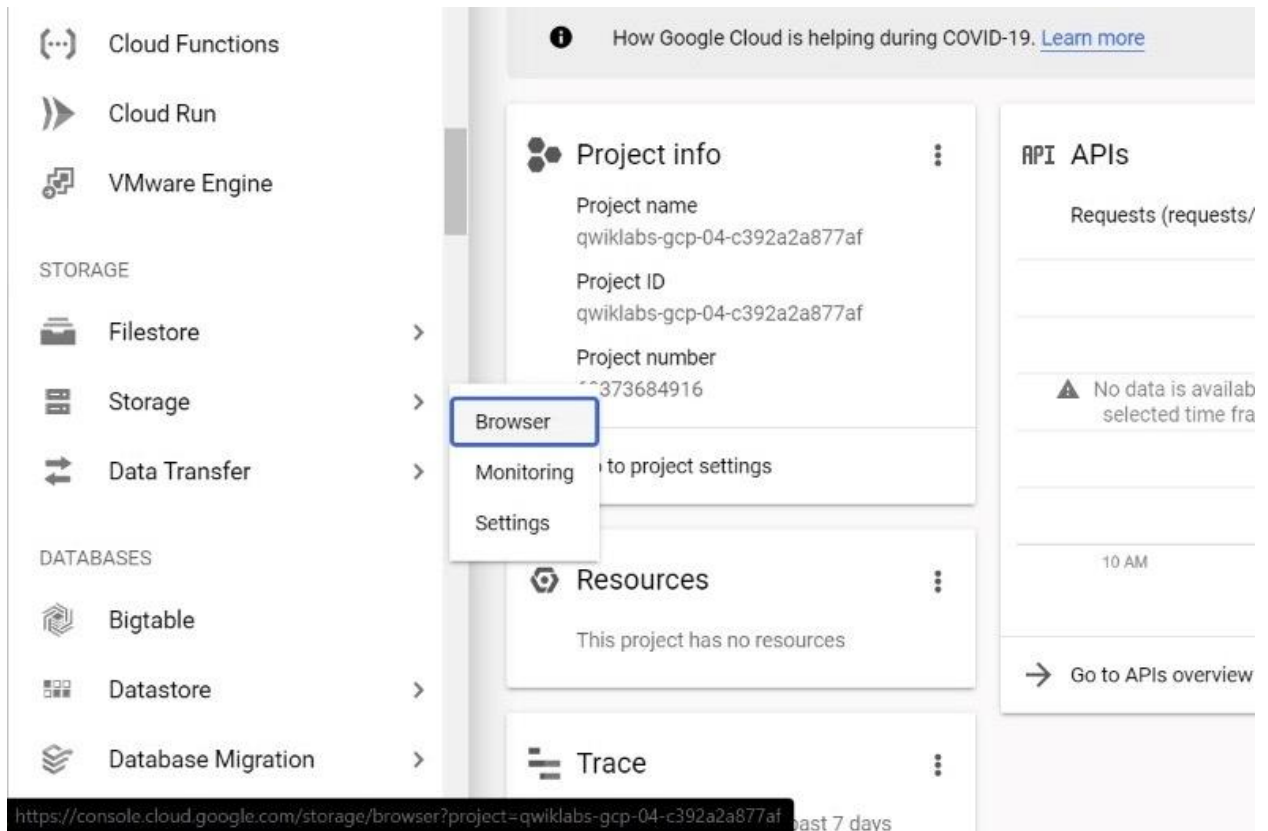
- **Google Cloud Storage: Creating a Folder**

Stepwise Procedure:

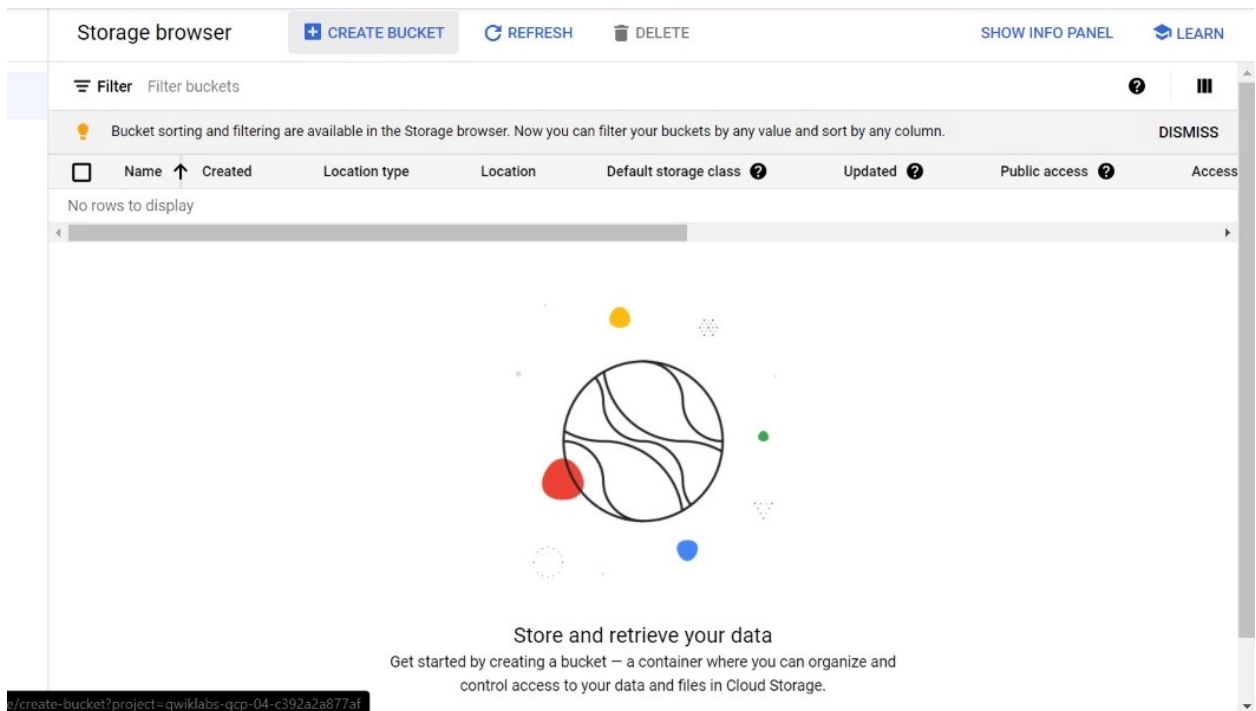
- 1) Visit (<https://cloud.google.com/>) and Sign In to your Google account.
- 2) A Google Cloud console will look like as shown in the picture.



- 3) Now click on the Navigation menu and search for Storage and then click on the Browser.



- 4) A storage browser page will be opened. Now click on the CREATE BUCKET button to create a new Bucket.



- 5) A new form will open which will ask for some details of your bucket.
For e.g., Name, Location Type etc.

The screenshot shows the 'Create a bucket' form with the first step, 'Name your bucket', highlighted with a red exclamation mark icon. The form has a back arrow and 'Create a bucket' title on the left, and an 'ESTIMATE COST' button on the right. The main content area says 'Pick a globally unique, permanent name. [Naming guidelines](#)'. Below this is a text input field containing 'mynavigationbucket' and a tip: 'Tip: Don't include any sensitive information'. A 'CONTINUE' button is below the input field. To the right of the main content is a list of steps: 'Name your bucket' (active), 'Choose where to store your data', 'Choose a default storage class for your data', 'Choose how to control access to objects', and 'Advanced settings (optional)'. At the bottom are 'CREATE' and 'CANCEL' buttons.

← Create a bucket ESTIMATE COST

! Name your bucket

Pick a globally unique, permanent name. [Naming guidelines](#)

mynavigationbucket

Tip: Don't include any sensitive information

CONTINUE

- Choose where to store your data
- Choose a default storage class for your data
- Choose how to control access to objects
- Advanced settings (optional)

CREATE CANCEL

- 6) Give your bucket a name which is globally unique. If you want to know more about naming guidelines click on the “Naming guidelines” link.

The screenshot shows the 'Create a bucket' form with the second step, 'Choose where to store your data', highlighted with a blue checkmark icon. The form has a back arrow and 'Create a bucket' title on the left, and an 'ESTIMATE COST' button on the right. The main content area says 'This permanent choice defines the geographic placement of your data and affects cost, performance, and availability. [Learn more](#)'. Below this is the 'Location type' section with three radio button options: 'Region' (Lowest latency within a single region), 'Dual-region' (High availability and low latency across 2 regions), and 'Multi-region' (Highest availability across largest area). The 'Multi-region' option is selected. Below this is the 'Location' section with a dropdown menu showing 'us (multiple regions in United States)'. A 'CONTINUE' button is below the dropdown. To the right of the main content is a list of steps: 'Name your bucket', 'Choose where to store your data' (active), 'Choose a default storage class for your data', 'Choose how to control access to objects', and 'Advanced settings (optional)'. At the bottom are 'CREATE' and 'CANCEL' buttons.

← Create a bucket ESTIMATE COST

✓ Name your bucket

- **Choose where to store your data**

This permanent choice defines the geographic placement of your data and affects cost, performance, and availability. [Learn more](#)

Location type

☐ Region
Lowest latency within a single region

☐ Dual-region
High availability and low latency across 2 regions

☒ Multi-region
Highest availability across largest area

Location

us (multiple regions in United States)

CONTINUE

- Choose a default storage class for your data

- 7) Now select the “Location Type” for your bucket in my case I am selecting “Multi-region” bucket and then click on Continue button.

← Create a bucket ESTIMATE COST

✓ **Name your bucket**

- **Choose where to store your data**
This permanent choice defines the geographic placement of your data and affects cost, performance, and availability. [Learn more](#)
Location type
 - ☐ Region
Lowest latency within a single region
 - ☐ Dual-region
High availability and low latency across 2 regions
 - ☒ Multi-region
Highest availability across largest area**Location**
us (multiple regions in United States) ▼
CONTINUE

- **Choose a default storage class for your data**

- 8) Keep rest of the settings as default settings and click on Create button to create a new Bucket.

← Create a bucket ESTIMATE COST

✓ **Choose where to store your data**

- **Choose a default storage class for your data**
A storage class sets costs for storage, retrieval, and operations. Pick a default storage class based on how long you plan to store your data and how often it will be accessed. [Learn more](#)
 - ☒ Standard ?
Best for short-term storage and frequently accessed data
 - ☐ Nearline
Best for backups and data accessed less than once a month
 - ☐ Coldline
Best for disaster recovery and data accessed less than once a quarter
 - ☐ Archive
Best for long-term digital preservation of data accessed less than once a yearCONTINUE
- **Choose how to control access to objects**
- **Advanced settings (optional)**

CREATE CANCEL

- 9) As you can see or bucket “mynavigationbucket” is now created and we can use it to store our data on the Google Cloud.

Storage browser [+ CREATE BUCKET](#) [DELETE](#) [REFRESH](#) [SHOW INFO PANEL](#)

[Filter](#) Filter buckets [?](#) [☰](#)

[💡](#) Bucket sorting and filtering are available in the Storage browser. Now you can filter your buckets by any value and sort by any column. [DISMISS](#)

<input type="checkbox"/>	Name ↑	Created	Location type	Location	Default storage class ?	Updated ?	
<input type="checkbox"/>	mynavigationbucket	Jan 12, 2021, 10:46:07 AM	Multi-region	us (multiple re...	Standard	Jan 12, 2021, 10:46:07 A	⋮

- 10) Now open your bucket and click on the Create Folder button to create a new Folder in your bucket.

[←](#) Bucket details [REFRESH](#) [LEARN](#)



mynavigationbucket

[OBJECTS](#) [CONFIGURATION](#) [PERMISSIONS](#) [RETENTION](#) [LIFECYCLE](#)

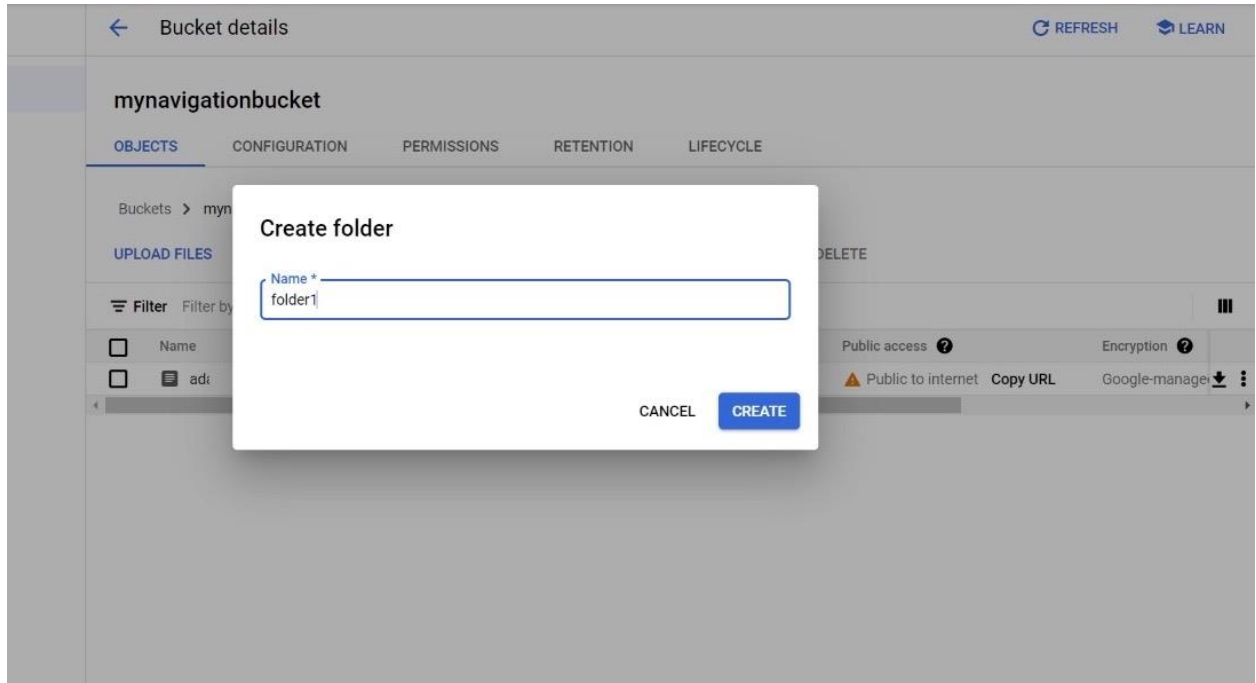
Buckets > mynavigationbucket [📁](#)

[UPLOAD FILES](#) [UPLOAD FOLDER](#) [CREATE FOLDER](#) [MANAGE HOLDS](#) [DOWNLOAD](#) [DELETE](#)

[Filter](#) Filter by object or folder name prefix [☰](#)

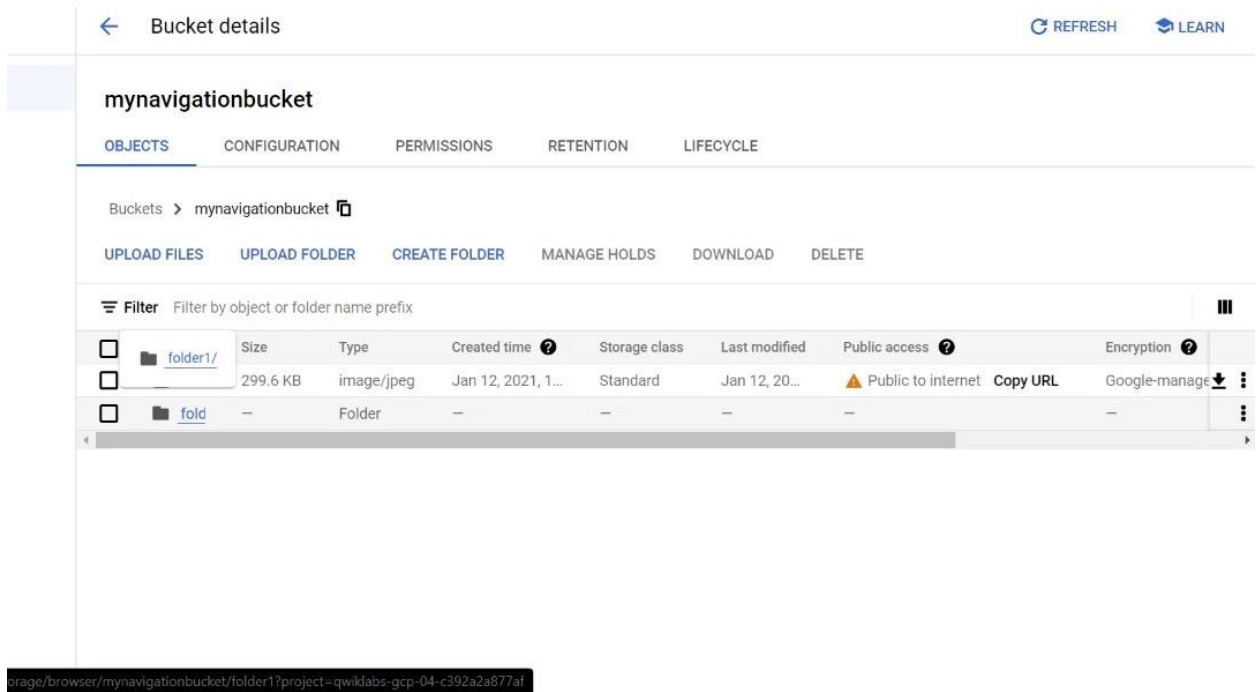
<input type="checkbox"/>	Name	Size	Type	Created time ?	Storage class	Last modified	Public access ?	Encryption ?	
<input type="checkbox"/>	 adi	299.6 KB	image/jpeg	Jan 12, 2021, 1...	Standard	Jan 12, 20...	 Public to internet Copy URL	Google-manage	⬇ ⋮

11) You can give any name to your folder in my case I am giving it name as “folder1”.



12) Now click on the CREATE button to create a new folder in your bucket.

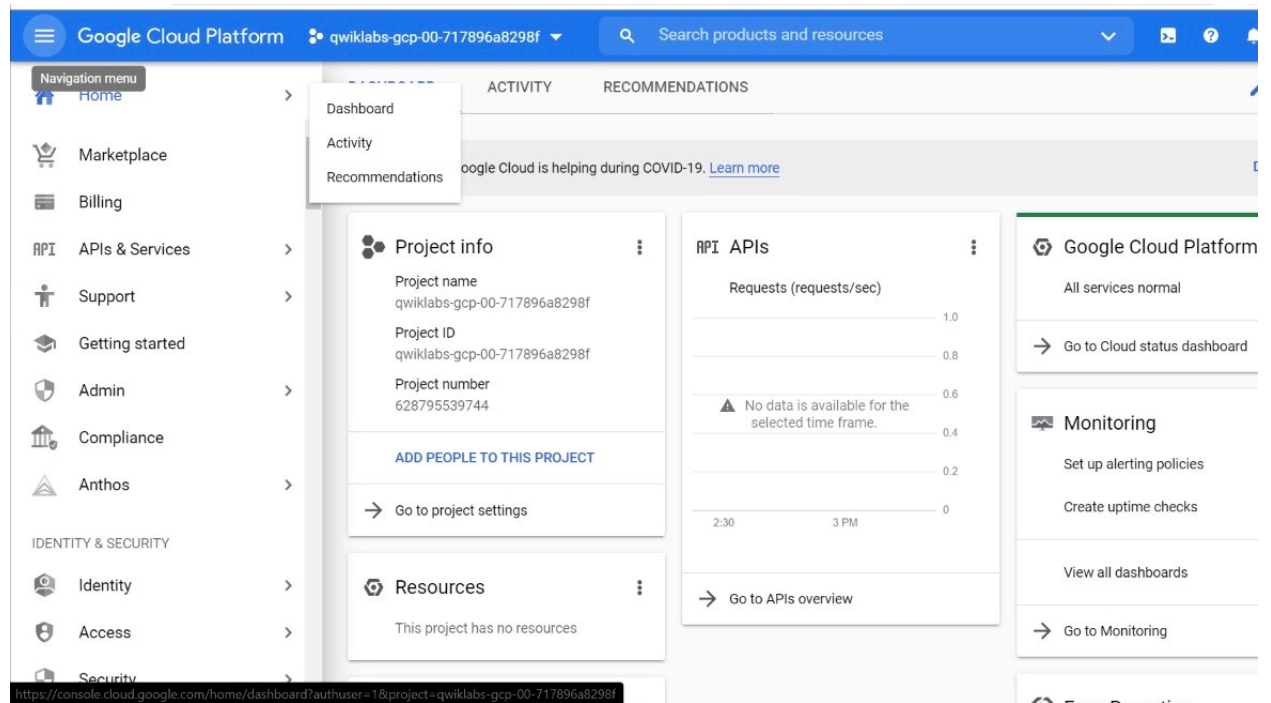
13) As you can see our folder named as “folder1” is now created and we can store data in that folder.



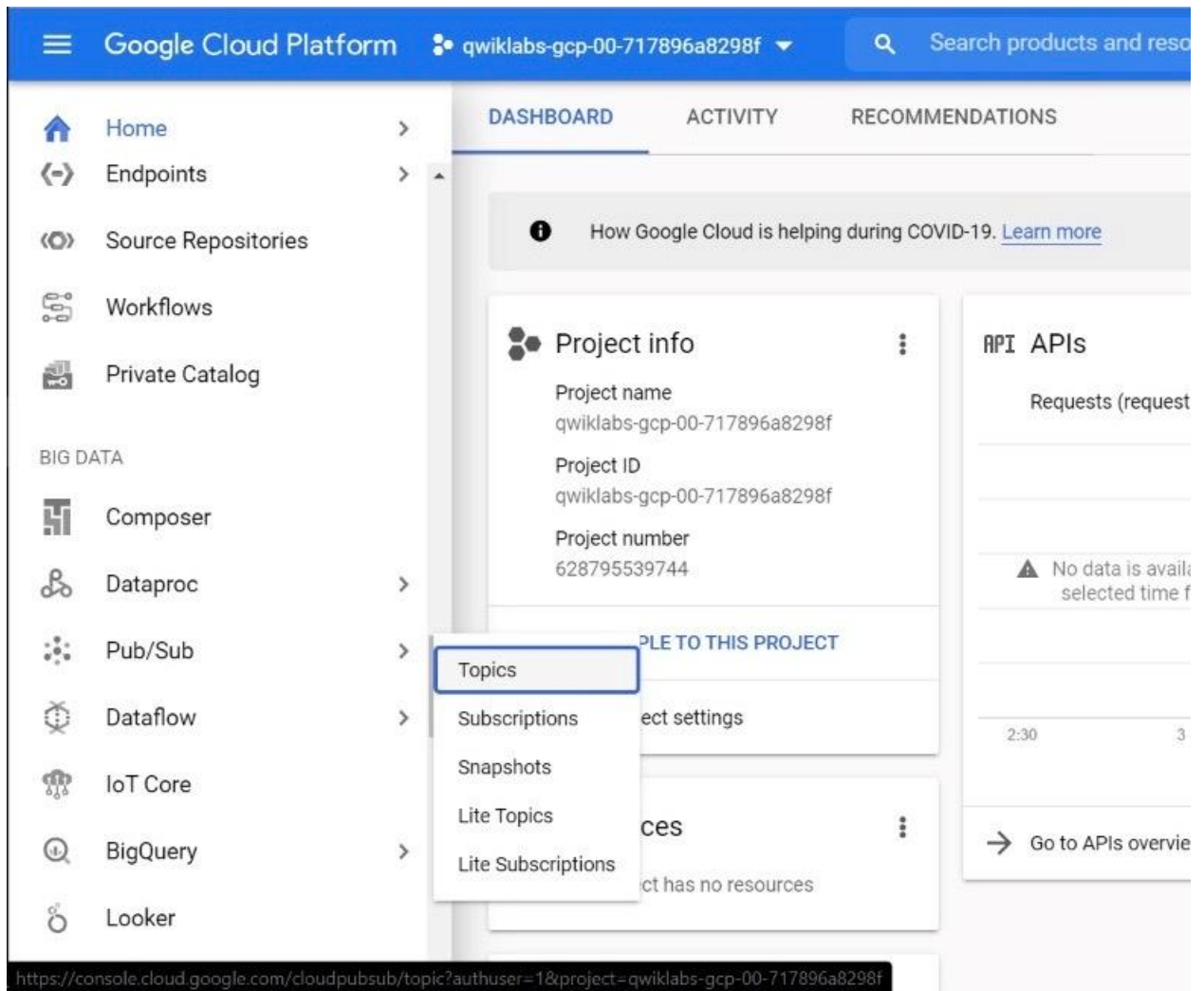
- **Google Cloud Pub/Sub:**

Stepwise Procedure:

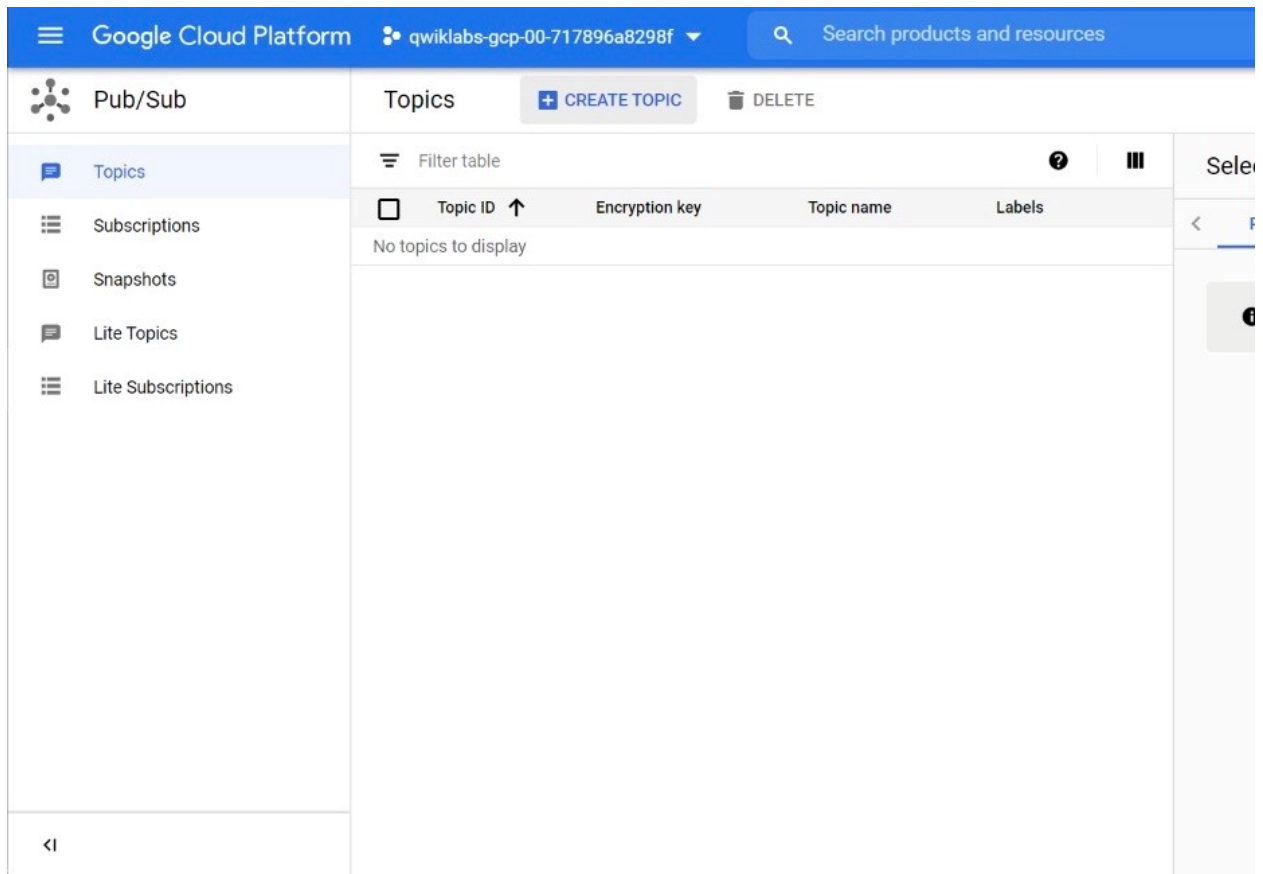
- 1) Visit (<https://cloud.google.com/>) and Sign In to your Google account.
- 2) A Google Cloud console will look like as shown in the picture.



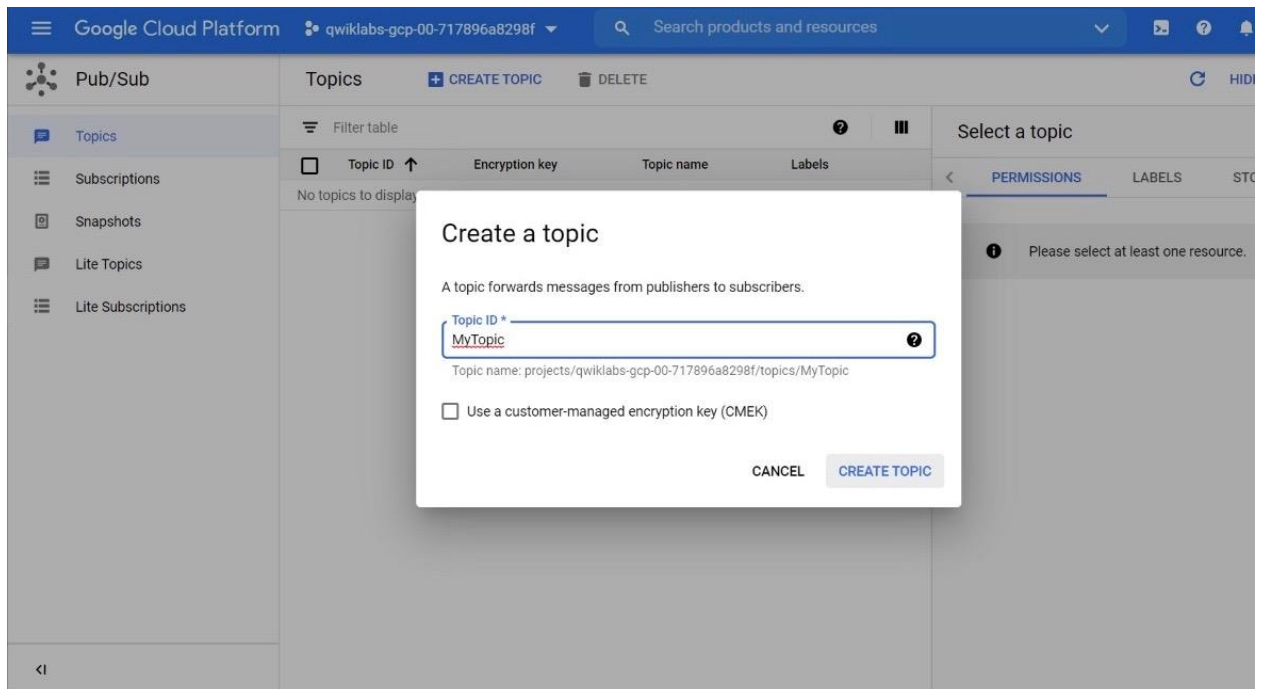
- 3) Now click on the Navigation menu as shown in the above picture and search for Pub/Sub and then click on Topics.




4) To create a new Topic, click on Create Topic button a new Dialog box will be opened.





5) Give a unique ID to your Topic and click on Create Topic button.







6) As you can see our Topic named as “My Topic” is now created.



qwiklabs-gcp-00-717896a8298f






Topics

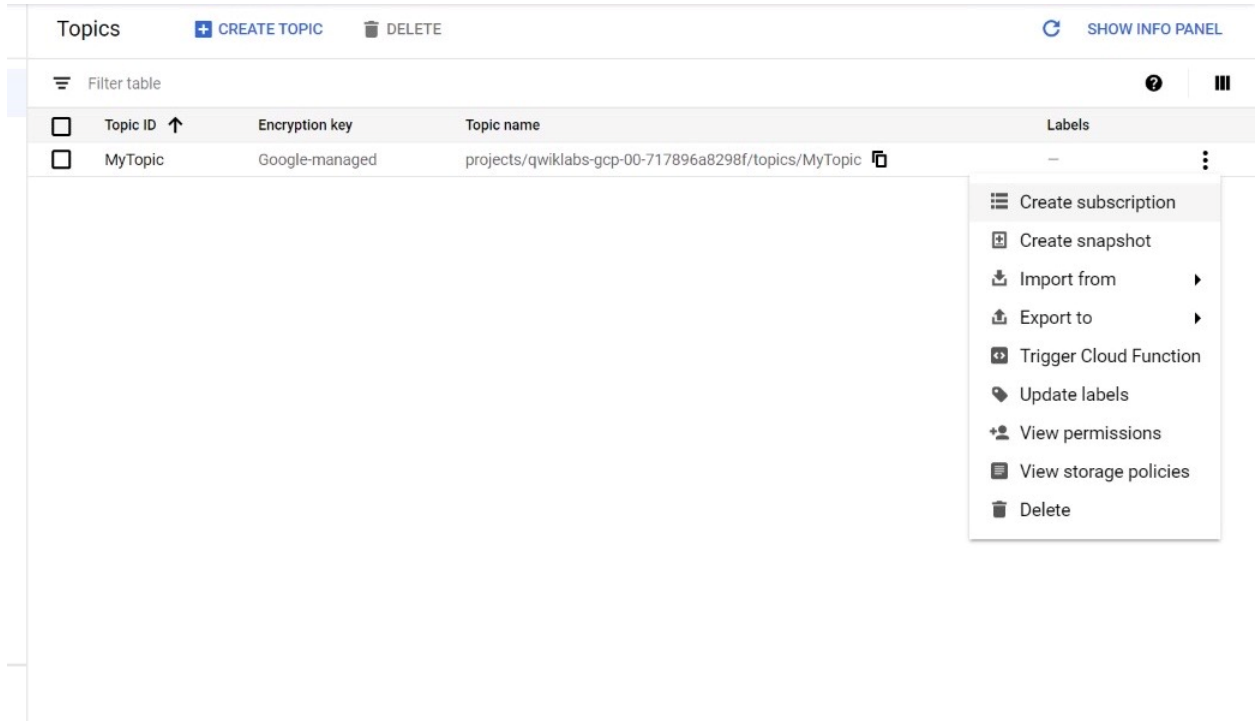
 CREATE TOPIC
  DELETE

 Filter table

<input type="checkbox"/>	Topic ID 	Encryption key	Topic name	Labels
<input type="checkbox"/>	MyTopic	Google-managed	projects/qwiklabs-gcp-00-717896a8298f/topics/MyTopic 	—

7) Now to create a Subscription Click on the “Create Subscription” as shown in the image.



8) Give an ID to your subscription and select the delivery type as Pull.

← Add subscription to topic

A subscription directs messages on a topic to subscribers. Messages can be pushed to subscribers immediately, or subscribers can pull messages as needed.

Subscription ID *

MySub



Subscription name: projects/qwiklabs-gcp-00-717896a8298f/subscriptions/MySub

Topic name

projects/qwiklabs-gcp-00-717896a8298f/topics/MyTopic

Delivery type

If Pull, subscribers must request delivery. If Push, Pub/Sub delivers messages as soon as they are published.

☒ Pull

☐ Push

Message retention duration

Retain unacknowledged messages for a specified duration. If retain acknowledged messages is enabled, acknowledged messages are retained for the same duration.

Duration is from 10 minutes to 7 days

Days

7

Hours

0

Minutes

0

- 9) Now keeping the other settings as default click on the Create button to create a subscription.

Add subscription to topic

Max 180 characters. Filters cannot be changed or removed once applied.

Message ordering

- ☐ Order messages with an ordering key
- When enabled, messages tagged with the same ordering key will be received in the order they are published. This option cannot be changed later.

Dead lettering

- ☐ Enable dead lettering
- Subscriptions may configure a maximum number of delivery attempts. When a message cannot be delivered, it is republished to the specified dead letter topic.

Retry policy

Retry policy will be triggered on NACKs or acknowledgement deadline exceeded events for a given message. [Learn more](#)

- ☒ Retry immediately
- ☐ Retry after exponential backoff delay

CREATE

10) To check the subscription go back to "MyTopic" again and scroll down you can see "MySub" as subscription that we just created.

Pub/Sub

Topics

Subscriptions

Snapshots

Lite Topics

Lite Subscriptions

MyTopic

PUBLISH MESSAGE

VIEW MESSAGES

TRIGGER CLOUD FUNCTION

SHOW INFO PANEL

Requests/sec

No data is available for the selected time frame.

Operations/sec

No data is available for the selected time frame.

Encryption key

Google-managed

Labels

-

SUBSCRIPTIONS

SNAPSHOTS

Only subscriptions attached to this topic are displayed. A subscription captures the stream of messages published to a given topic. You can also stream messages to BigQuery or Cloud Storage by creating a subscription from a Cloud Dataflow job. [Learn more](#)

CREATE SUBSCRIPTION

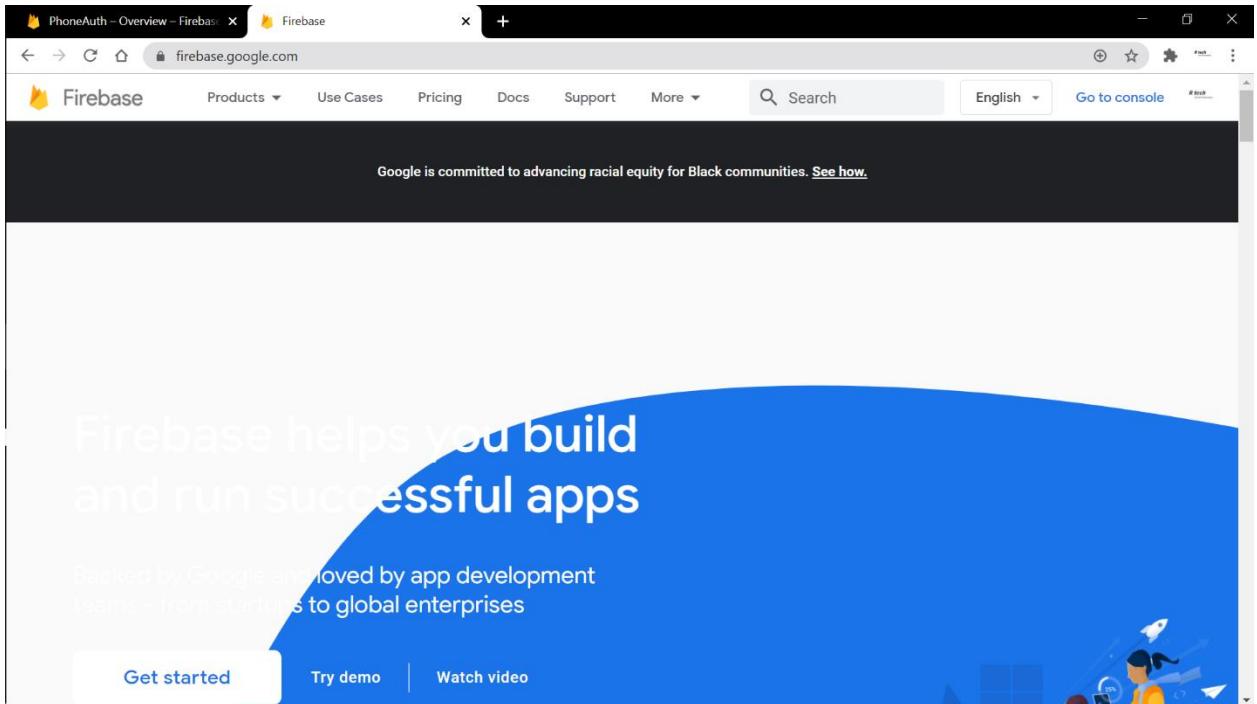
Filter table

Subscription ID	Subscription name	Project
MySub	projects/qwiklabs-gcp-00-717896a8298f/subscriptions/MySub	qwiklabs-gcp-00-717896a8298f

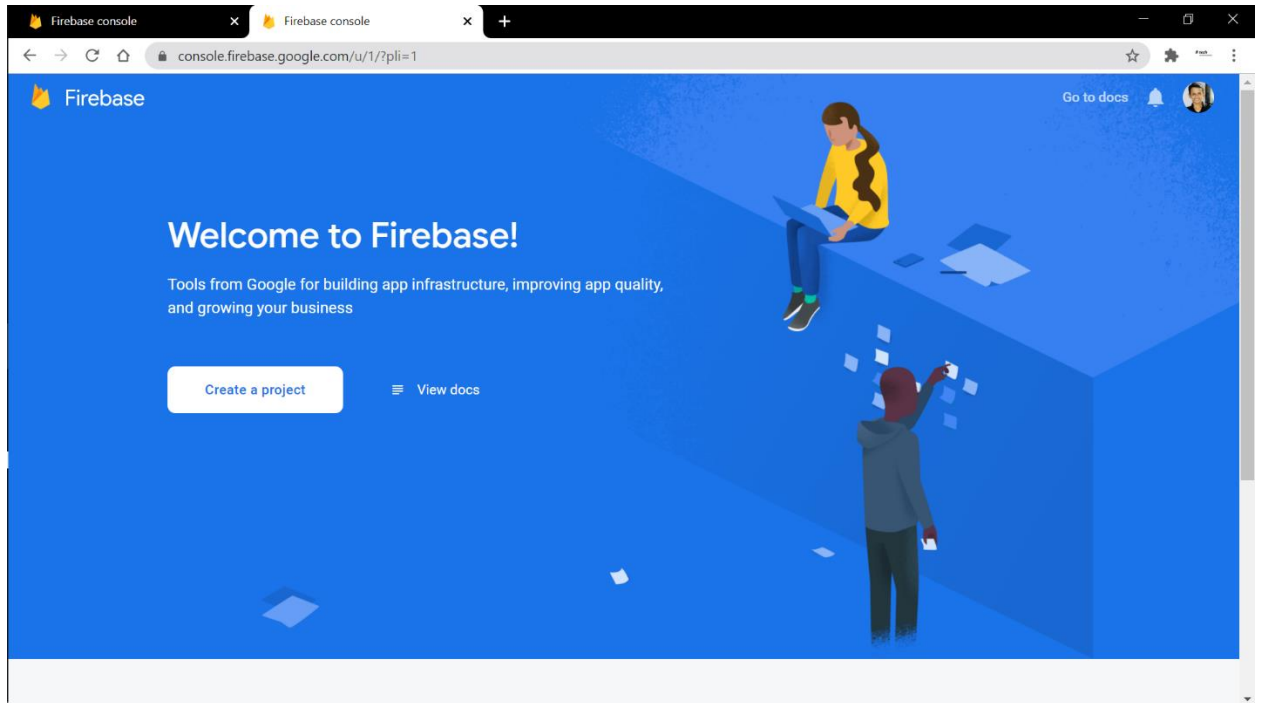
- a. Firebase database service (<https://firebase.google.com/docs/database/>)
- **Firebase Realtime Database:**

Stepwise Procedure:

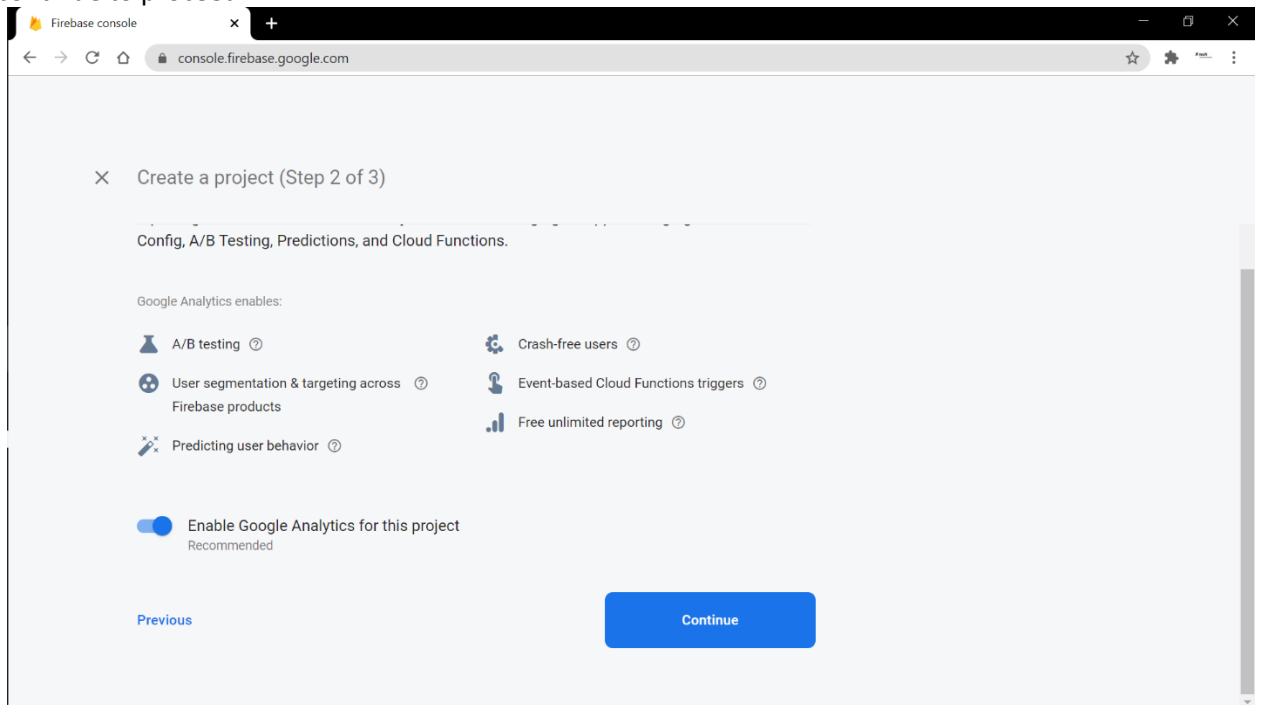
- 1) Firstly visit (<https://firebase.google.com/>) and Sign In to your account.



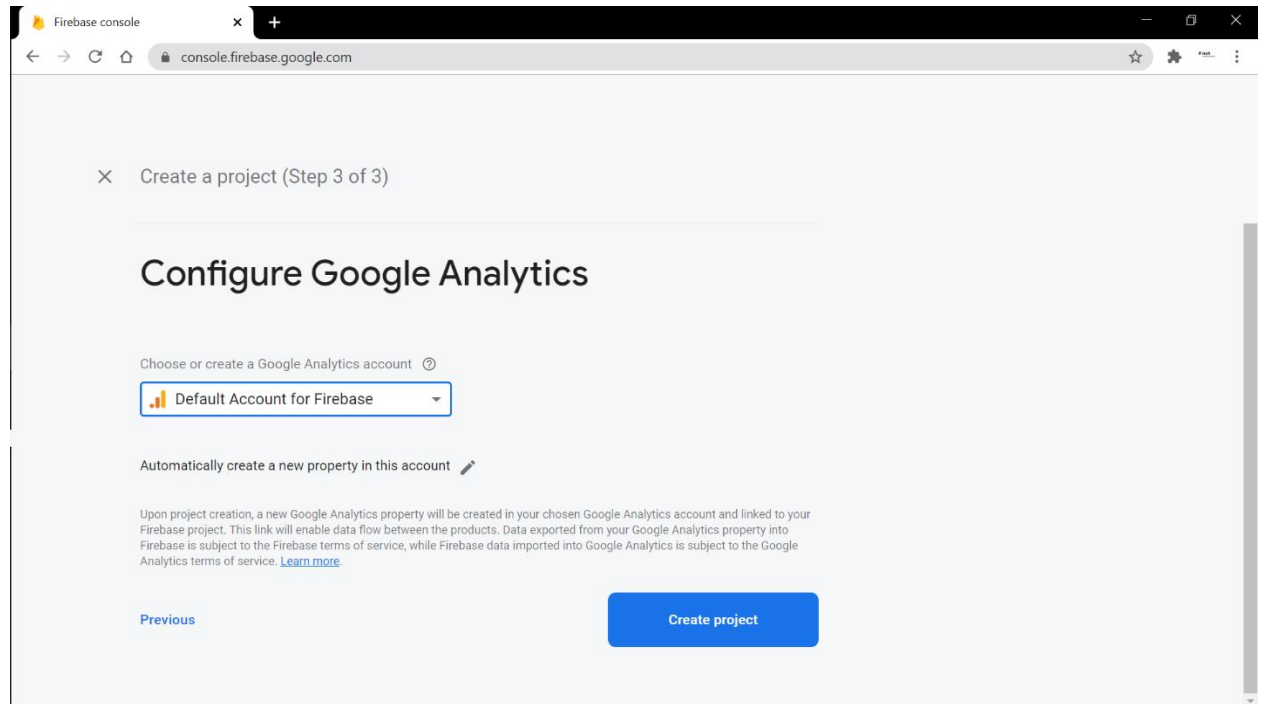
- 2) Sign In to your account to continue you can use your existing Google account to Sign In or you can create a new account.
- 3) After signing in click on the Create a project button two create a new project or you can use the existing project if you have any.



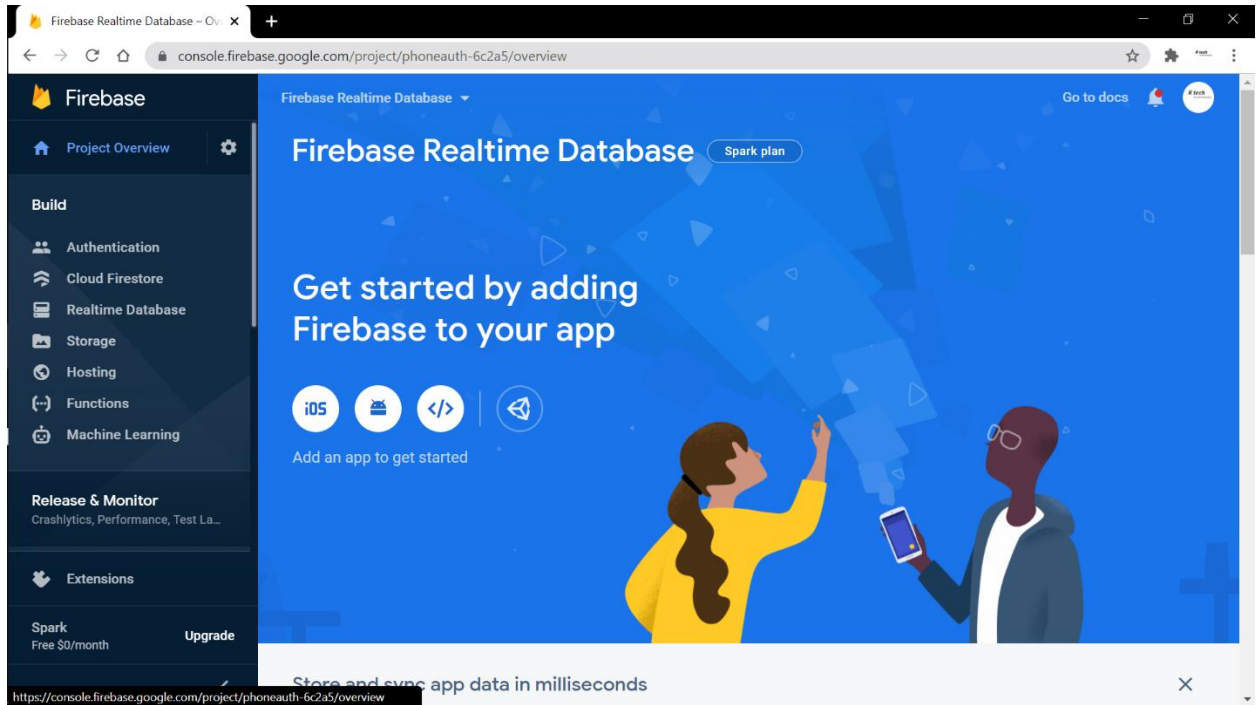
- 4) After clicking Create a new Project give a name to your new project in this case, I am giving name as "Firebase Realtime Database". You can give any name to the project. After giving name to your project click on the next Button.
- 5) After this Firebase will ask for enabling Google Analytics to your project. Google Analytics is a web analytics service offered by Google that tracks and reports website traffic. Click continue to proceed.



- 6) Configure the Google Analytics with your default Firebase account or you can provide another account. After selecting your account press the Create Project button to finish the configuration of our new project.



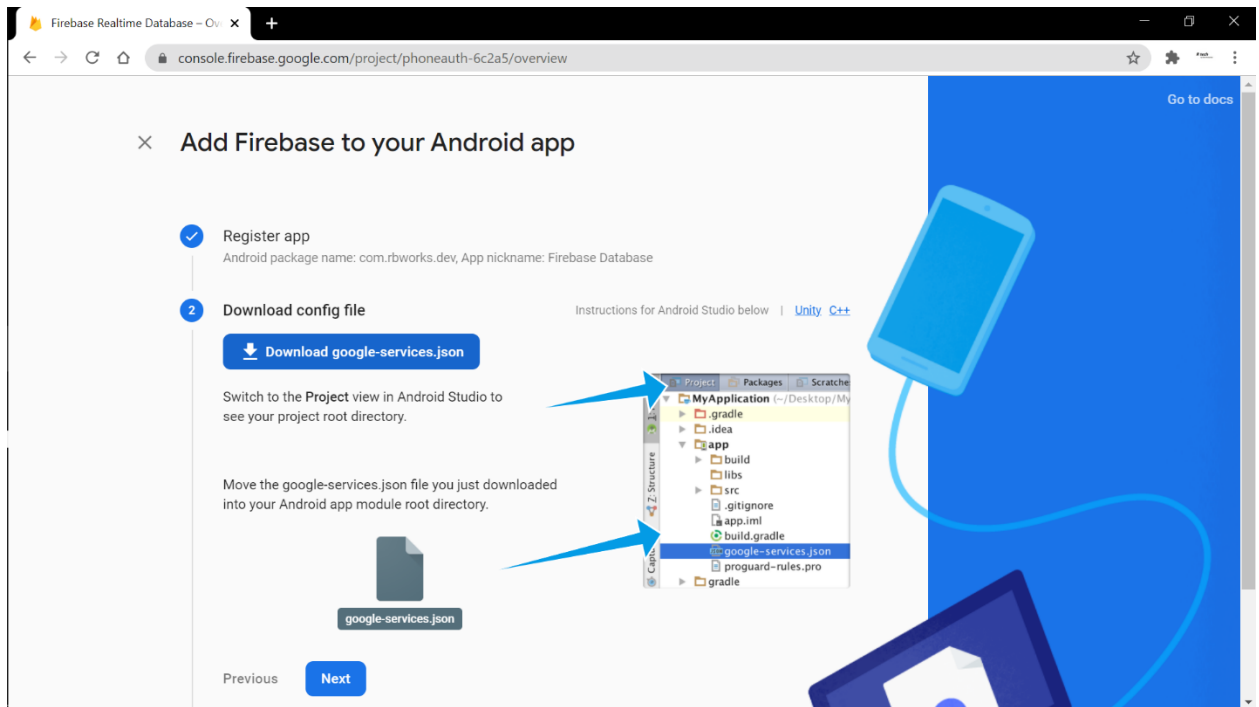
- 7) Now the project is created with name “Firebase Realtime Database” and a dashboard page for the project will open as shown in the screenshot.



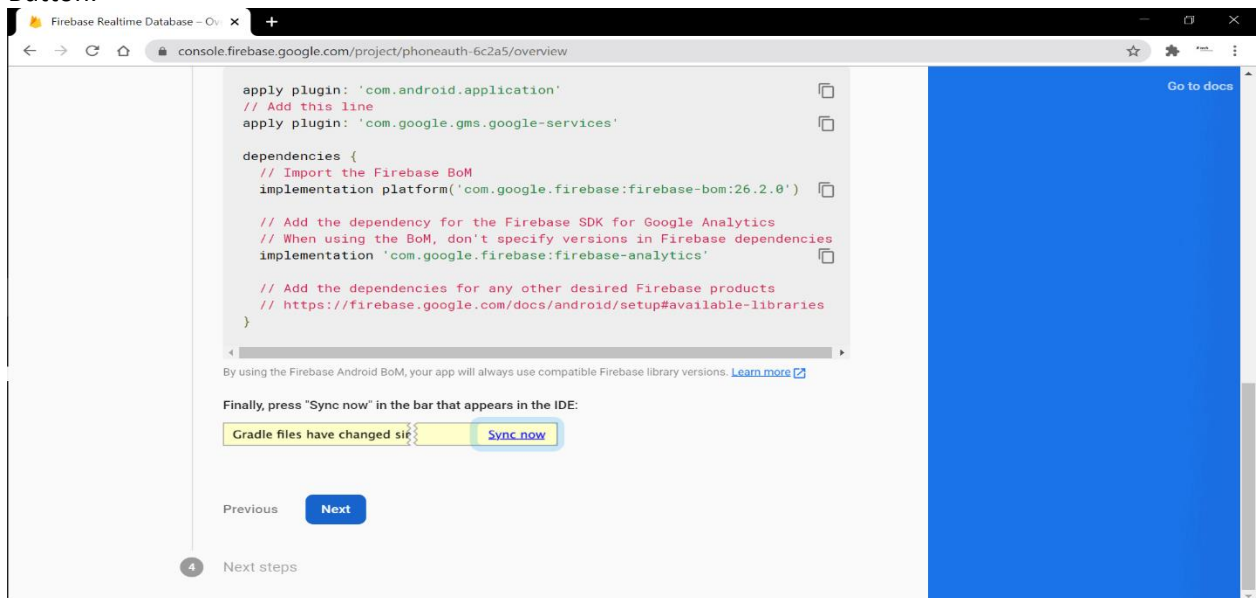
- 8) Now select the app platform to get started in my case I have developed Android application which will use the Firebase Realtime database to store its data so I will select the Android icon.

- 9) Now for Android, Register your application with Firebase by giving Android package name in my case it is "com.rbworks.dev" then give a nickname to your application and click on the Register app button.

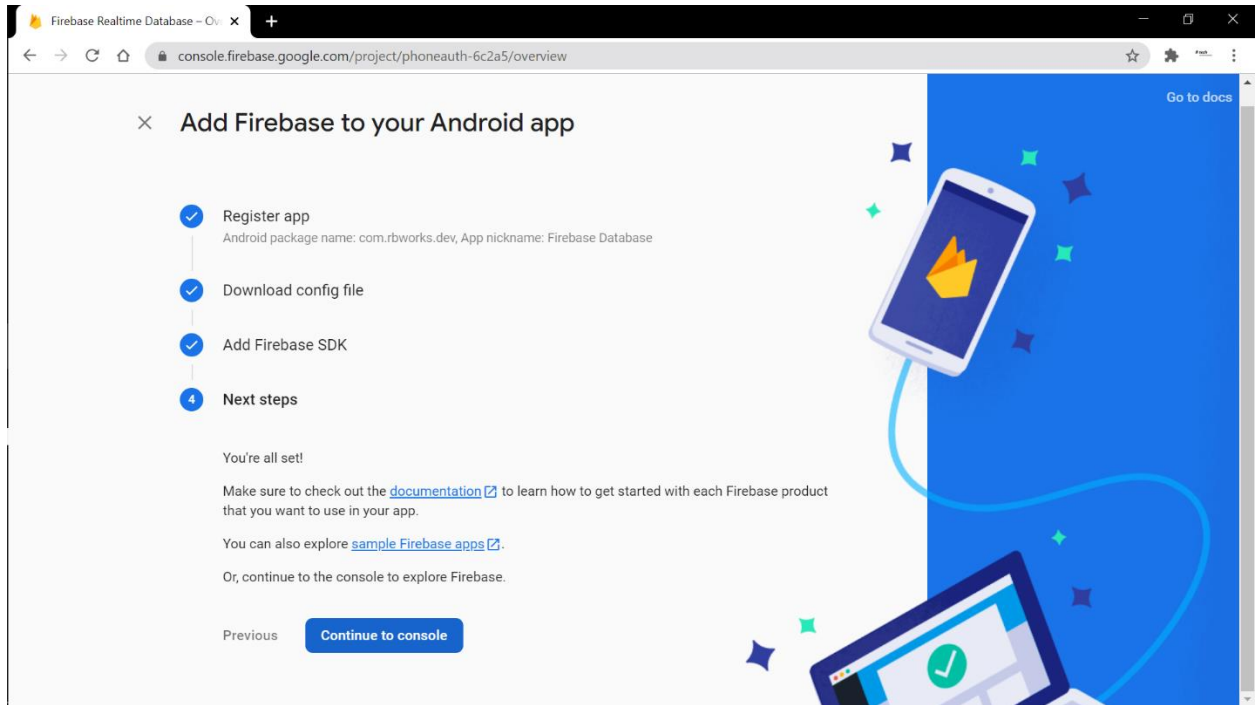
- 10) Now download the “google-services.json” file which is a configuration file of our project and add it to the Android application project in Android Studio and click Next.



- 11) Now add these Android specific dependencies and to your Android project and click Next Button.



- 12) Now click the Continue to Console button here the Android application is successfully registered with our Firebase Realtime Database Project.



- 13) Now from our Android application we will send some data to our Firebase Realtime database such as Name and Role of a person and click the Upload Data button.

Firebase Realtime Database

Rohit Bhokarika

Student



Upload Data

14) As you can see the data, we entered in our Android application is now stored in our Firebase Realtime Database.

Data –

Name – Rohit Bhokarikar

Role – Student

