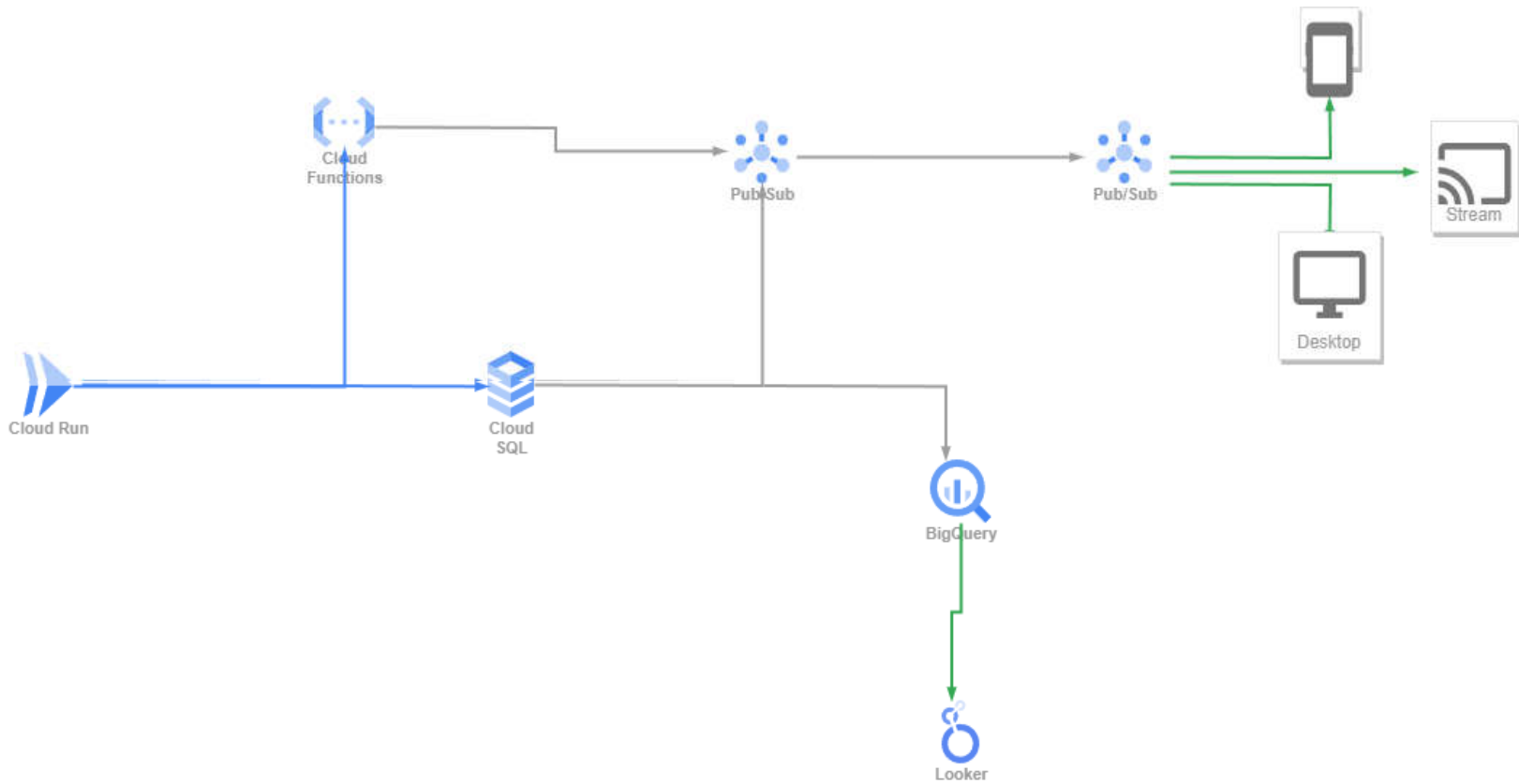


# Stock\_Market\_Appliaction\_Case\_Study

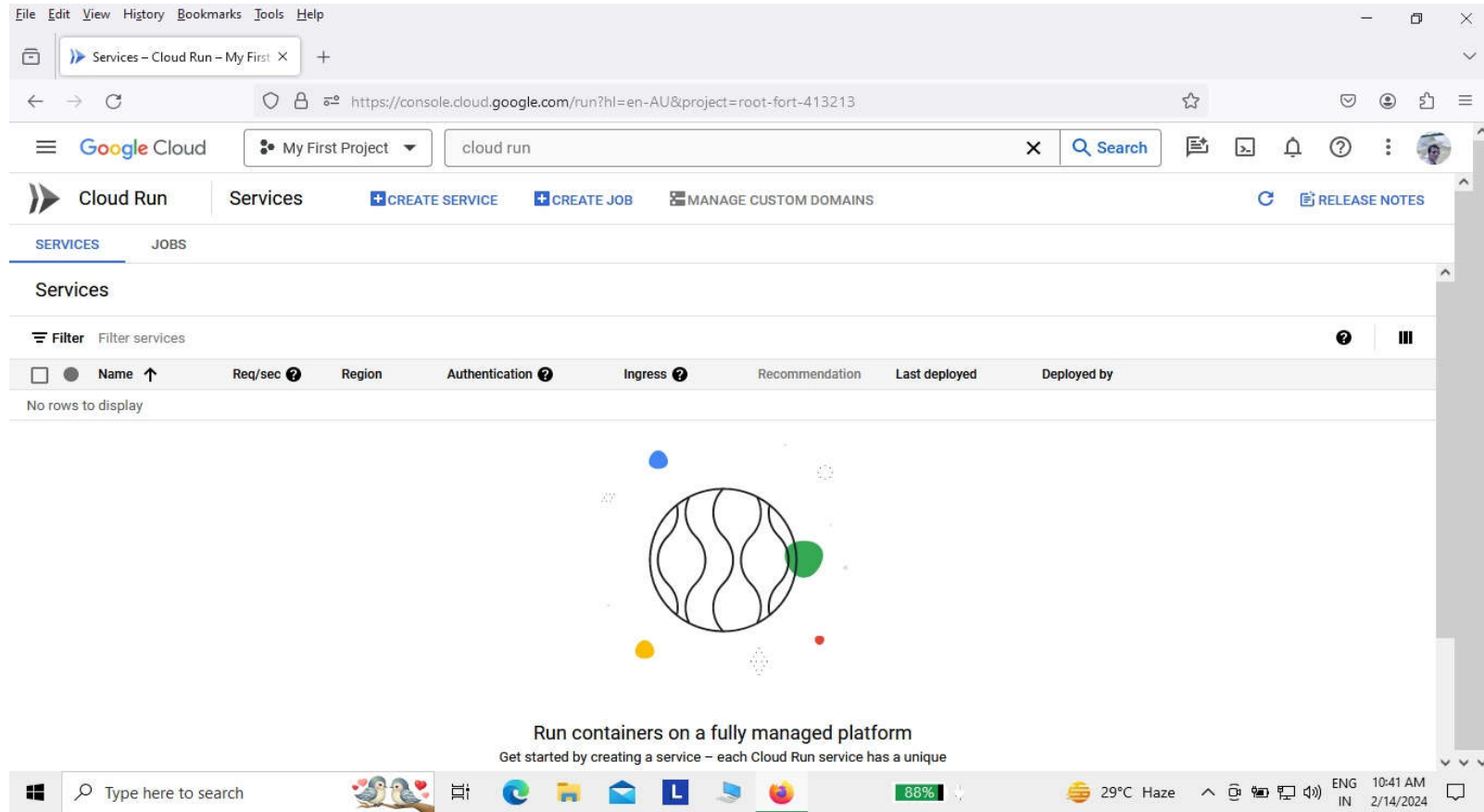
## COMPANY OVERVIEW

**STOCK MARKET APP** is a share market application where millions of orders are processed and converted into trades. Company planning to Deploy their application on google cloud platform. Company expects high volume of order request during Pre-Open market session (9: 9:15 am) And post market session ( 3:30 to 4 pm). Company wants to leverage the Scalability aspect of the google cloud to deploy its application and also leverage its ability to store data in huge volume for data analysis. Stock market is having a surveillance department ,that is going to analyze real time trading to see anyone is manipulating the market or not.

# Architecture Diagram of Stock Market App



# 1. CREATE A CLOUD RUN



Go to console page and click search bar and type cloud run then click cloud run button and go to cloud run.

# Create a job and choose the region then scroll down the page

File Edit View History Bookmarks Tools Help

Cloud Run - My First Project - X

https://console.cloud.google.com/run/jobs/create?hl=en-AU&project=root-fort-413213

Google Cloud My First Project cloud run Search

Cloud Run Create job

later.

Container image URL [SELECT](#)

[TEST WITH A SAMPLE CONTAINER](#)  
[How to build a container](#)

Job name \*  
stock-market-app

Region \*  
us-central1 (Iowa) [How to pick a region?](#)

Number of tasks \*  
1  
The number of times to run the container. All tasks must succeed in order for a job to succeed.

Container, variables and secrets, connections, security

☐ Execute job immediately

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

Type here to search

91% 29°C ENG IN 10:44 AM 2/14/2024

# Add connection with cloud Sql and create button click

File Edit View History Bookmarks Tools Help

share-app-db - Connections Cloud Run - My First Project how to connect cloud run to cl Connect from Cloud Run | Cl

https://console.cloud.google.com/run/jobs/create?hl=en-AU&project=root-fort-413213

Google Cloud My First Project Search (/) for resources, docs, products and more Search

Cloud Run Create job

Number of tasks \*  
1  
The number of times to run the container. All tasks must succeed in order for a job to succeed.

Container, variables and secrets, connections, security ^

GENERAL VARIABLES & SECRETS CONNECTIONS SECURITY

Cloud SQL connections ?

Cloud SQL instance 1  
root-fort-413213:us-central1:share-app-db

+ ADD CONNECTION

☐ Connect to a VPC for outbound traffic  
Allow your job to send traffic to a virtual private cloud. [How to choose between VPC options?](#)

☐ Execute job immediately

CREATE CANCEL

Type here to search

29°C Haze 11:38 AM 2/14/2024

# Job is running and deploy

File Edit View History Bookmarks Tools Help

History - ...arket-app - Cloud R X Quickstart: Create and execute X +


https://console.cloud.google.com/run/jobs/details/us-central1/stock-market-app/executions?hl=en-AU&project=root-fort-4

Google Cloud My First Project cloud run Search

Cloud Run Job details EXECUTE EDIT DELETE

Job: stock-market-app Region: us-central1 Last updated: 14 Feb 2024, 10:46:56

HISTORY METRICS LOGS CONFIGURATION VOLUMES TRIGGERS YAML



No history for this job yet

To execute this job, click 'Execute' at the top of the page. [Learn more](#)

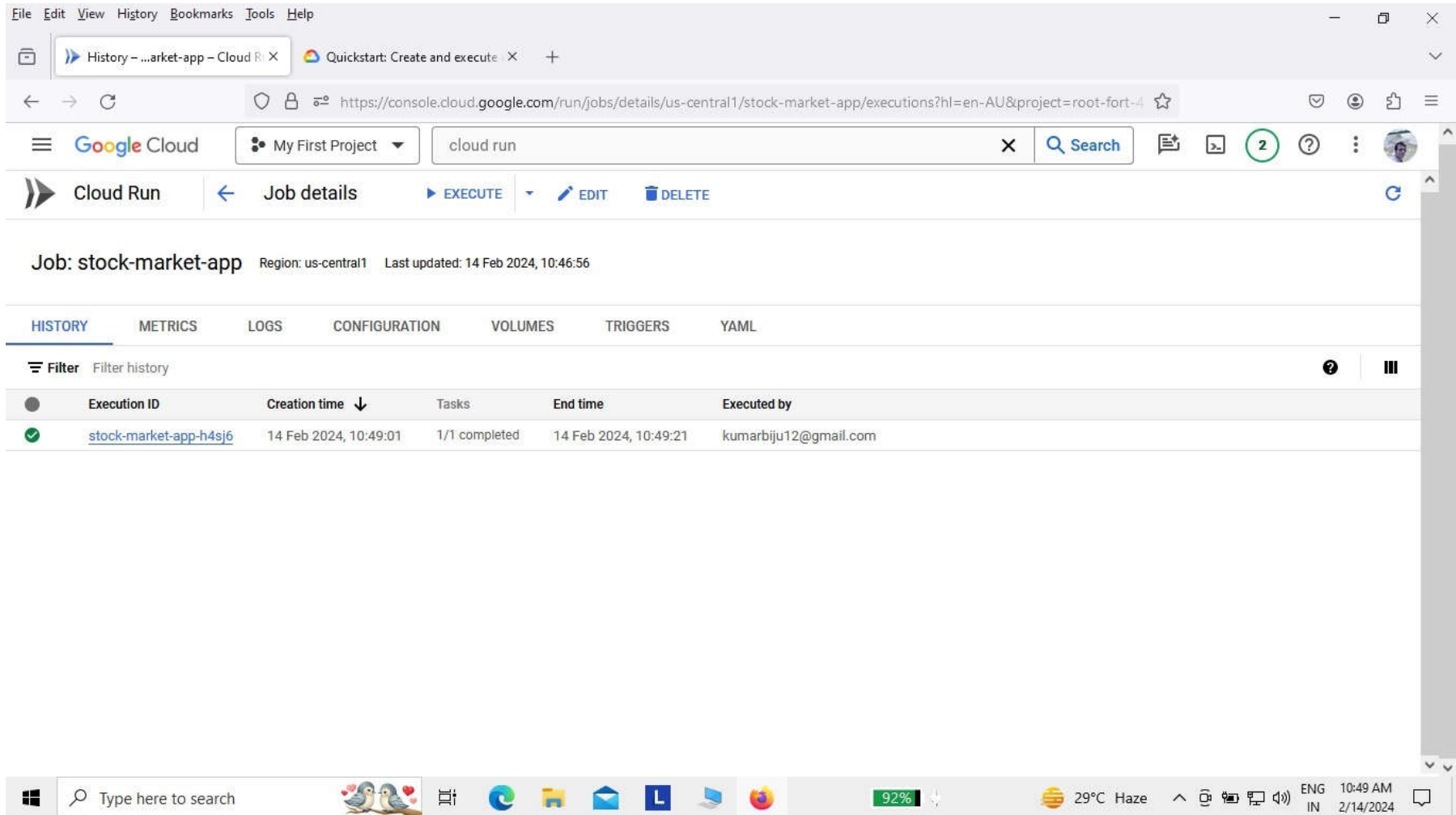
Type here to search

91%

29°C Haze

ENG IN 10:46 AM 2/14/2024

# Stock market app is successfully create and ready the deploy



The screenshot displays the Google Cloud Run console interface. The browser address bar shows the URL: <https://console.cloud.google.com/run/jobs/details/us-central1/stock-market-app/executions?hl=en-AU&project=root-fort-4>. The page title is "Job: stock-market-app" with details "Region: us-central1" and "Last updated: 14 Feb 2024, 10:46:56". The "HISTORY" tab is selected, showing a table of execution history. The table has columns: Execution ID, Creation time, Tasks, End time, and Executed by. A single execution is listed with ID "stock-market-app-h4sj6", created on "14 Feb 2024, 10:49:01", with "1/1 completed" tasks, ending on "14 Feb 2024, 10:49:21", and executed by "kumarbiju12@gmail.com". The execution status is indicated by a green checkmark. The Windows taskbar at the bottom shows the search bar, task view, and various application icons, along with system status: 92% battery, 29°C Haze, and date/time: 10:49 AM 2/14/2024.

File Edit View History Bookmarks Tools Help

History - ...arket-app - Cloud Run Quickstart: Create and execute X +

← → ↻ 🔒 https://console.cloud.google.com/run/jobs/details/us-central1/stock-market-app/executions?hl=en-AU&project=root-fort-4 ☆

Google Cloud My First Project cloud run X Search 2 ? : 👤

Cloud Run Job details EXECUTE EDIT DELETE

Job: stock-market-app Region: us-central1 Last updated: 14 Feb 2024, 10:46:56

HISTORY METRICS LOGS CONFIGURATION VOLUMES TRIGGERS YAML

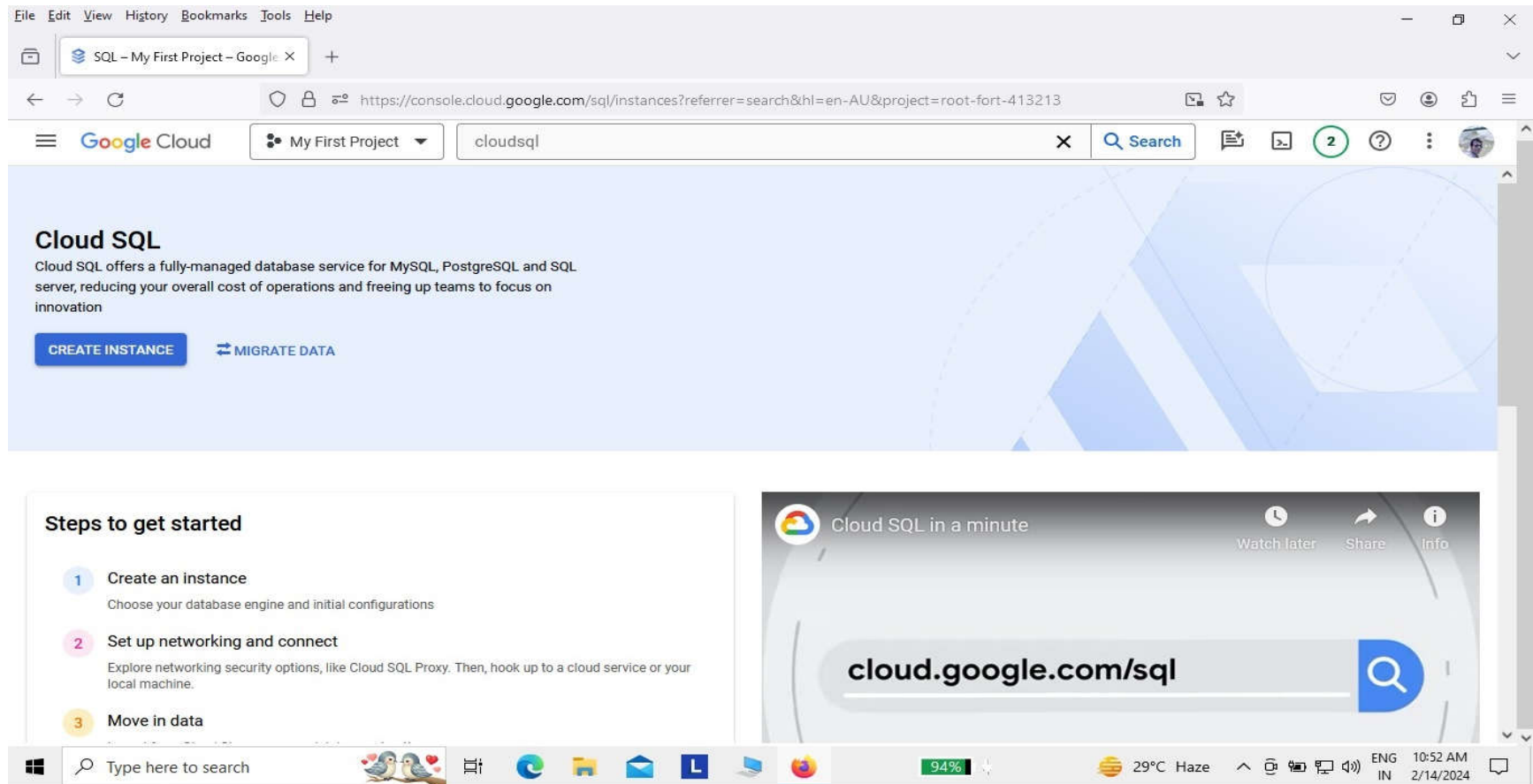
Filter Filter history ? |||

Execution ID	Creation time ↓	Tasks	End time	Executed by
stock-market-app-h4sj6	14 Feb 2024, 10:49:01	1/1 completed	14 Feb 2024, 10:49:21	kumarbiju12@gmail.com

Type here to search

92% 29°C Haze 10:49 AM 2/14/2024

## 2. CREATE A CLOUD SQL INSTANCE



Go to search bar type cloud sql and click the cloud sql button and scroll down the page



# Choose the sql which your compatible

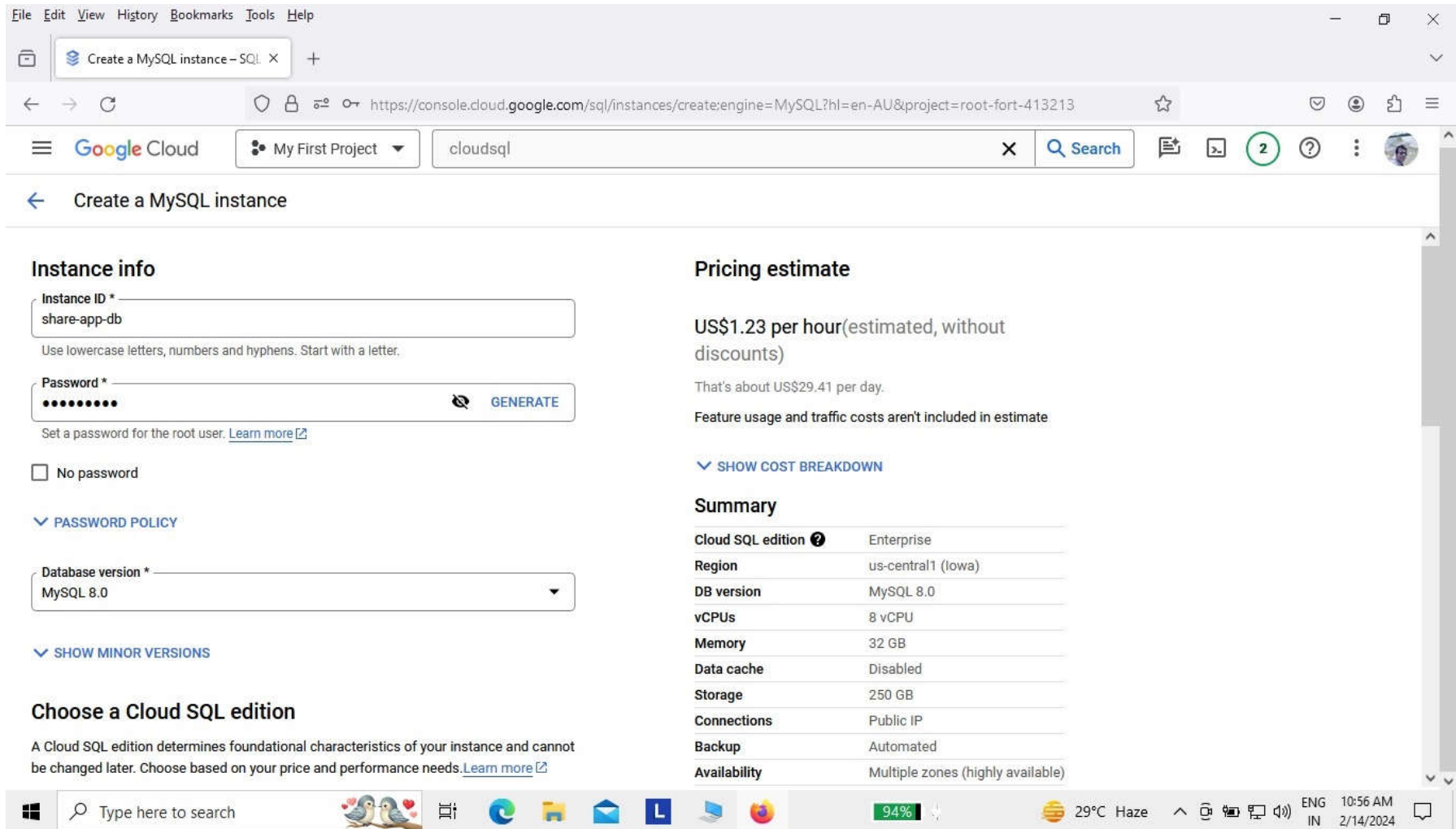
The screenshot displays the Google Cloud console interface for selecting a database engine. The browser window has a single tab titled 'Create an instance - SQL - My F X'. The address bar shows the URL: <https://console.cloud.google.com/sql/choose-instance-engine?hl=en-AU&project=root-fort-413213>. The Google Cloud header includes the 'Google Cloud' logo, a project selector set to 'My First Project', a search bar with 'cloudsql', and a notification badge with the number '2'. The main content area is titled 'Choose your database engine' and features three cards:

- MySQL**: Versions: 8.0, 5.7, 5.6. Button: [Choose MySQL](#)
- PostgreSQL**: Versions: 15, 14, 13, 12, 11, 10, 9.6. Button: [Choose PostgreSQL](#)
- SQL Server**: Versions: 2022, 2019, 2017. Button: [Choose SQL Server](#)

Below the cards, a link states: 'Want more context on the Cloud SQL database engines? [Learn more](#)'.

The Windows taskbar at the bottom shows the search bar with 'Type here to search', several application icons, a battery level of 94%, weather information for 29°C Haze, and the system clock showing 10:53 AM on 2/14/2024.

# Go to MySQL page and give a name and set password then version and scroll down the page



File Edit View History Bookmarks Tools Help

Create a MySQL instance - SQL X +

https://console.cloud.google.com/sql/instances/create?engine=MySQL?hl=en-AU&project=root-fort-413213

Google Cloud My First Project cloudsql Search

## Create a MySQL instance

### Instance info

Instance ID \*  
share-app-db  
Use lowercase letters, numbers and hyphens. Start with a letter.

Password \*  
●●●●●●●● GENERATE  
Set a password for the root user. [Learn more](#)

☐ No password

▼ PASSWORD POLICY

Database version \*  
MySQL 8.0  
▼

▼ SHOW MINOR VERSIONS

### Choose a Cloud SQL edition

A Cloud SQL edition determines foundational characteristics of your instance and cannot be changed later. Choose based on your price and performance needs. [Learn more](#)

### Pricing estimate

US\$1.23 per hour (estimated, without discounts)  
That's about US\$29.41 per day.

Feature usage and traffic costs aren't included in estimate

▼ SHOW COST BREAKDOWN

### Summary

Cloud SQL edition	Enterprise
Region	us-central1 (Iowa)
DB version	MySQL 8.0
vCPUs	8 vCPU
Memory	32 GB
Data cache	Disabled
Storage	250 GB
Connections	Public IP
Backup	Automated
Availability	Multiple zones (highly available)

Type here to search



94%



29°C Haze



ENG

10:56 AM

2/14/2024

# Choose the cloud sql edition for you customized and scroll down the page

File Edit View History Bookmarks Tools Help

Create a MySQL instance – SQL X +

https://console.cloud.google.com/sql/instances/create;engine=MySQL?hl=en-AU&project=root-fort-413213

Google Cloud My First Project cloudsql Search

## Create a MySQL instance

be changed later. Choose based on your price and performance needs. [Learn more](#)

☐ Enterprise Plus

- 99.99% availability SLA for eligible instances
- High-performance machines, up to 128 vCPUs
- Up to 35 days point-in-time recovery
- Data cache (optional)

☒ Enterprise

- 99.95% availability SLA for eligible instances
- General-purpose machines, up to 96 vCPUs
- Up to 7 days point-in-time recovery

Choose a preset for this edition. Presets can be customised later as needed.

Sandbox

[COMPARE EDITION PRESETS](#)

### Choose region and zonal availability

For better performance, keep your data close to the services that need it. Region is permanent, while zone can be changed any time.

Region

### Pricing estimate

US\$0.14 per hour (estimated, without discounts)

That's about US\$3.38 per day.

Feature usage and traffic costs aren't included in estimate

[SHOW COST BREAKDOWN](#)

### Summary

Cloud SQL edition	Enterprise
Region	us-central1 (Iowa)
DB version	MySQL 8.0
vCPUs	2 vCPU
Memory	8 GB
Data cache	Disabled
Storage	10 GB
Connections	Public IP
Backup	Automated
Availability	Single zone

Windows Taskbar: Type here to search, 95% battery, 29°C Haze, 10:57 AM 2/14/2024

# Click the create instance button

The screenshot shows the Google Cloud console interface for creating a MySQL instance. The page is titled 'Create a MySQL instance' and includes a navigation bar with 'Google Cloud', 'My First Project', and a search bar. The main content area is divided into two sections: 'Choose region and zonal availability' and 'Customise your instance'.

**Choose region and zonal availability**

For better performance, keep your data close to the services that need it. Region is permanent, while zone can be changed any time.

**Region**

us-central1 (Iowa)

**Zonal availability**

☒ Single zone  
In case of outage, no failover. Not recommended for production.

☐ Multiple zones (highly available)  
Automatic failover to another zone within your selected region. Recommended for production instances. Increases cost.

[SPECIFY ZONES](#)

**Customise your instance**

You can also customise instance configurations later

[SHOW CONFIGURATION OPTIONS](#)

**CREATE INSTANCE** **CANCEL**

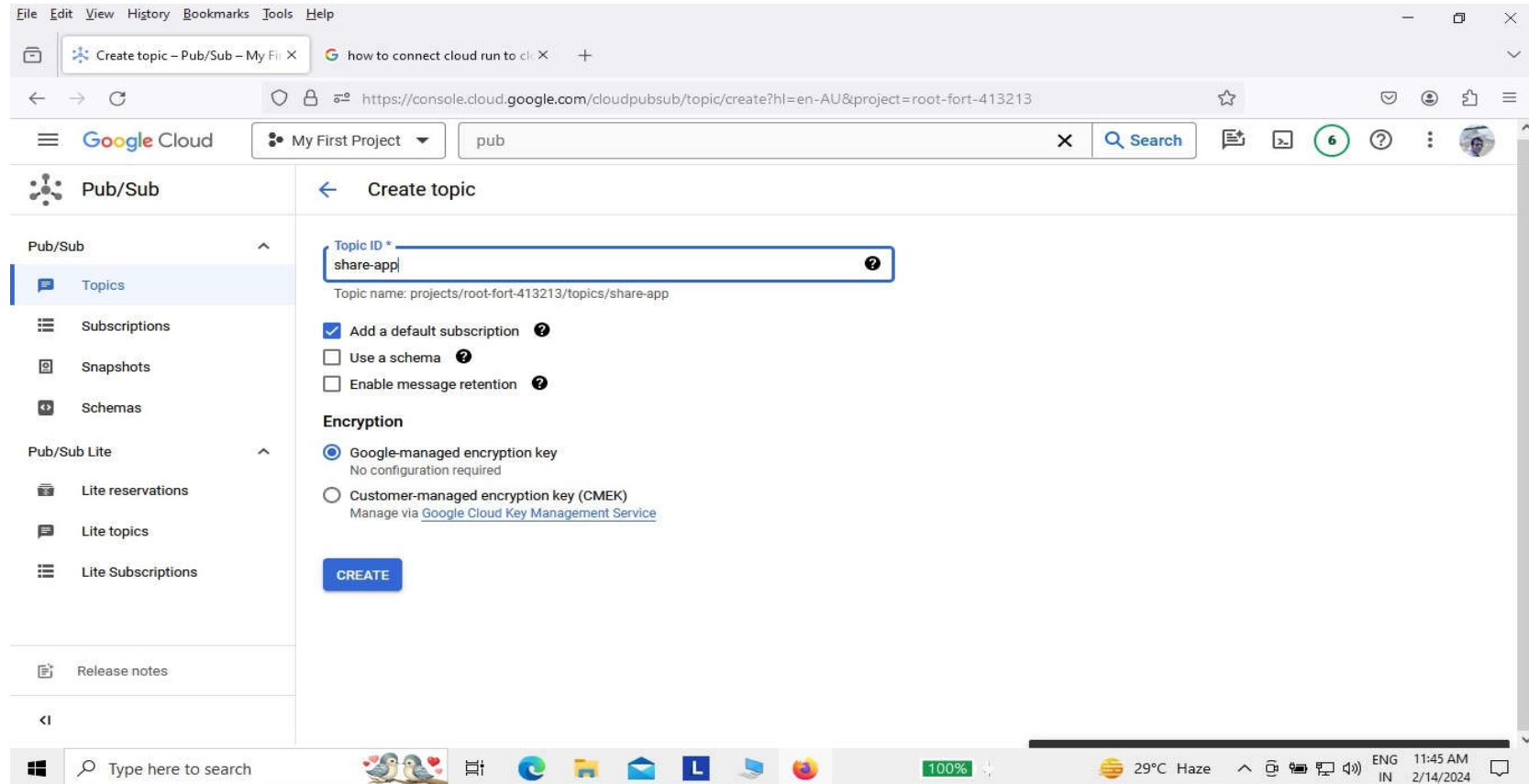
**Summary**

Cloud SQL edition	Enterprise
Region	us-central1 (Iowa)
DB version	MySQL 8.0
vCPUs	2 vCPU
Memory	8 GB
Data cache	Disabled
Storage	10 GB
Connections	Public IP
Backup	Automated
Availability	Single zone
Point-in-time recovery	Enabled
Network throughput (MB/s)	500 of 500
Disk throughput (MB/s)	Read: 4.8 of 240.0 Write: 4.8 of 240.0
IOPS	Read: 300 of 15,000 Write: 300 of 15,000

# Cloud SQL is created and deploy

The screenshot displays the Google Cloud console interface. The browser's address bar shows the URL <https://console.cloud.google.com/sql/instances/share-app-db/overview?hl=en-AU&project=root-fort-413213>. The page title is "Create a MySQL instance - SQL". The main content area is mostly blank, with a large blue loading spinner in the center. At the bottom, there are two notification banners. The left banner, titled "Instance is being created", has a close button (X). The right banner, titled "Uploads and My First Project operations", shows a progress bar for "Creating share-app-db" which is at 96% completion, with a duration of "0 min 3 sec". The Windows taskbar at the bottom includes the search bar, taskbar icons for various applications, a system tray showing 96% battery, 29°C temperature, and the date/time "10:58 AM 2/14/2024".

# 3. Create a PUB/SUB



Go to search bar and type pub/sub then click the pub/sub button. Create a topic and give a name share-app. Click the create button to create topic.

# Successfully create topic and ready

The screenshot shows the Google Cloud console interface for managing a Pub/Sub topic named 'share-app'. The topic name is 'projects/root-fort-413213/topics/share-app'. Two export options are visible: 'Export to BigQuery' and 'Export to Cloud Storage', both with an 'EXPORT DATA' button. The 'SUBSCRIPTIONS' tab is active, showing a message about subscriptions. The 'PERMISSIONS' tab is also visible, showing a list of roles and principals.

**Topic name:** projects/root-fort-413213/topics/share-app

**Export to BigQuery:** Export data to a BigQuery table. [EXPORT DATA](#)

**Export to Cloud Storage:** Export data to a text or Avro file in Cloud Storage. [EXPORT DATA](#)

**PERMISSIONS:**

Role/Principal	Inheritance
Cloud Build Service Account (1)	
Cloud Build Service Agent (1)	
Cloud Functions Service Agent (1)	
Cloud Scheduler Service Agent (1)	
Container Registry Service Agent (1)	
Editor (3)	
Owner (1)	



# Click the subscription and give a name share

The screenshot displays the Google Cloud Pub/Sub console interface. The browser address bar shows the URL: `https://console.cloud.google.com/cloudpubsub/subscription/detail/share?hl=en&project=root-fort-413213&tab=overview`. The left sidebar contains navigation options for 'Pub/Sub' (Topics, Subscriptions, Snapshots, Schemas) and 'Pub/Sub Lite' (Lite Reservations, Lite Topics, Lite Subscriptions, Release Notes). The main content area is titled 'share' and includes tabs for 'EDIT', 'CREATE SNAPSHOT', 'REPLAY MESSAGES', 'PURGE MESSAGES', 'DETACH', 'DELETE', and 'HIDE INFO PANEL'. The 'Subscription name' is 'projects/root-fort-413213/subscriptions/share', the 'Subscription state' is 'active', and the 'Topic name' is 'projects/root-fort-413213/topics/share-app'. Below this, there are tabs for 'METRICS', 'DETAILS', and 'MESSAGES'. The 'METRICS' tab is active, showing a 'GO BACK TO CLASSIC METRICS' link and a 'SAVE AS DASHBOARD' button. The 'RESET ZOOM' button is also visible. The 'Overview' section shows 'Oldest unacked message age' with a warning icon and the text 'No data is available for the selected time frame.' The right sidebar shows the 'share' subscription's 'PERMISSIONS' and 'LABELS' sections. The 'PERMISSIONS' section includes an 'ADD PRINCIPAL' button and a 'Show inherited permissions' toggle. The 'Filter' section allows entering a property name or value. The 'Role / Principal' section lists permissions for 'Cloud Build Service Agent (1)', 'Cloud Functions Service Agent (1)', 'Editor (3)', and 'Owner (1)'. The bottom status bar shows the Windows taskbar with a search bar, system icons, and the time '10:30 AM 2/15/2024'.

File Edit View History Bookmarks Tools Help

share - Pub/Sub - My First Proj

https://console.cloud.google.com/cloudpubsub/subscription/detail/share?hl=en&project=root-fort-413213&tab=overview

Google Cloud My First Project pub Search

Pub/Sub

Topics

Subscriptions

Snapshots

Schemas

Pub/Sub Lite

Lite Reservations

Lite Topics

Lite Subscriptions

Release Notes

share

EDIT CREATE SNAPSHOT REPLAY MESSAGES PURGE MESSAGES DETACH DELETE HIDE INFO PANEL

Subscription name projects/root-fort-413213/subscriptions/share

Subscription state active

Topic name projects/root-fort-413213/topics/share-app

METRICS DETAILS MESSAGES

GO BACK TO CLASSIC METRICS SAVE AS DASHBOARD

RESET ZOOM 1 hour 6 hours 1 day 1 week 1 month 6 weeks Custom

Overview

Health

Pull

Oldest unacked message age

No data is available for the selected time frame.

share

PERMISSIONS LABELS

Edit or delete permissions below, or select 'Add Principal' to grant new access.

ADD PRINCIPAL

Show inherited permissions

Filter Enter property name or value

Role / Principal Inheritance

Cloud Build Service Agent (1)

Cloud Functions Service Agent (1)

Editor (3)

Owner (1)

Type here to search

97%

29°C Haze

ENG IN 10:30 AM 2/15/2024



# Configure subscription to BigQuery through write data table

File Edit View History Bookmarks Tools Help

Create dataset - Pub/Sub - My

https://console.cloud.google.com/cloudpubsub/topic/addSubscription/share-app?hl=en&project=root-fort-413213

Google Cloud My First Project pub

Pub/Sub

Topics

Subscriptions

Snapshots

Schemas

Pub/Sub Lite

Lite Reservations

Lite Topics

Lite Subscriptions

Release Notes

← Add subscription to topic

directly to an existing BigQuery table. [Learn more](#)

☐ Write to Cloud Storage

A variant of the push operation. Select this option if you want Pub/Sub to deliver messages directly to an existing Cloud Storage bucket. [Learn more](#)

Project \*  
root-fort-413213 [BROWSE](#)

Dataset \*

Dataset is required

Table \*

Maximum name size is 1,024 UTF-8 bytes. Unicode letters, marks, numbers, connectors, dashes, and spaces are allowed.

To create a new table, [navigate to BigQuery](#), then return to create your subscription.

Schema Option

☒ None

Pub/Sub will write the message bytes to a column called `data` of the selected BigQuery table.

☐ Use Topic Schema

Pub/Sub will use the schema of the attached topic.

☐ Use Table Schema

Pub/Sub will use the schema of the BigQuery Table.

Create dataset

Project ID  
root-fort-413213 [CHANGE](#)

Dataset ID \*  
Analyze

Letters, numbers, and underscores allowed

Location type ?

☐ Region

Specify a region to colocate your datasets with other Google Cloud services.

☒ Multi-region

Allow BigQuery to select a region within a group to achieve higher quota limits.

Multi-region \*  
US (multiple regions in United States)

Default table expiration

☐ Enable table expiration ?

Default maximum table age Days

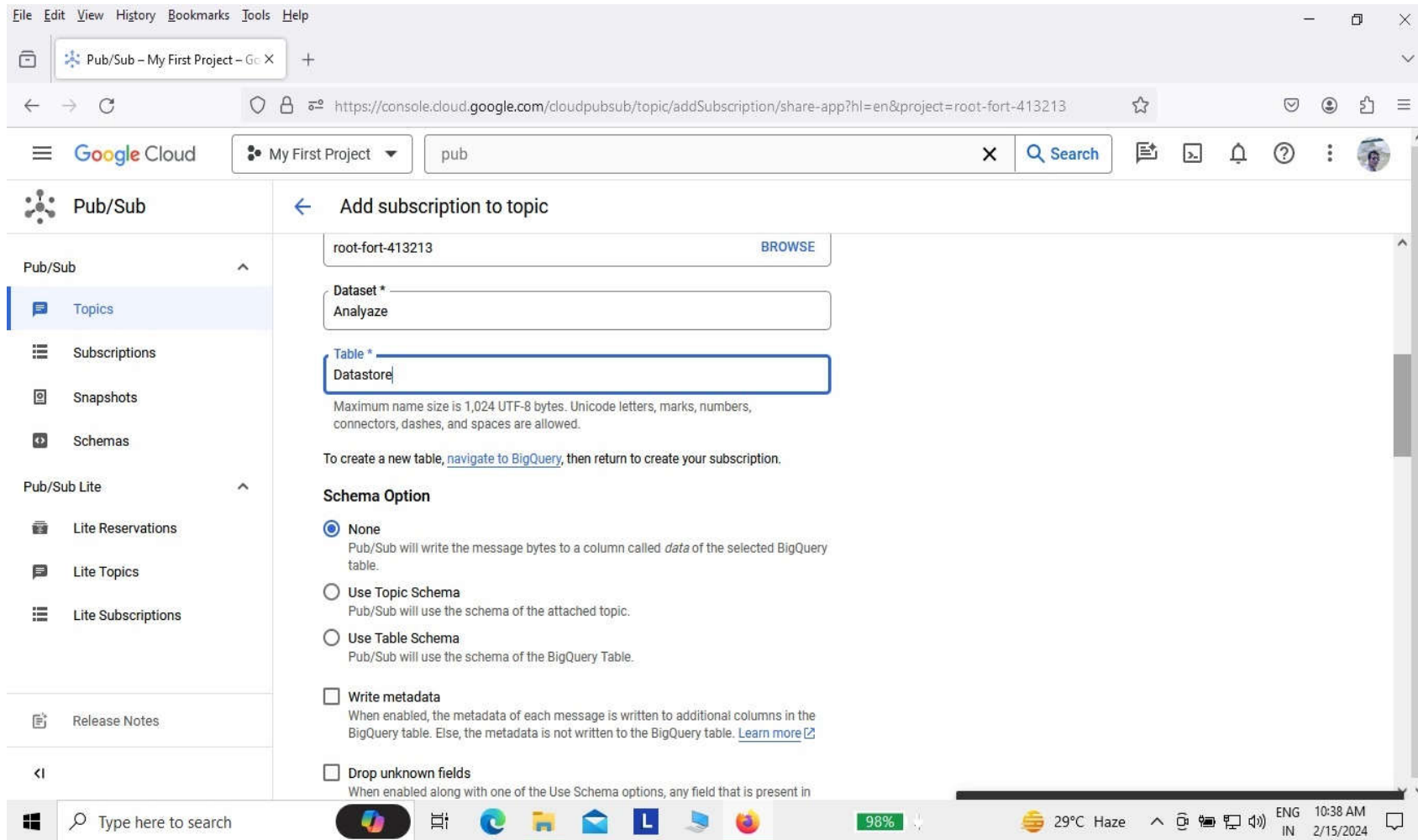
Advanced options

CREATE DATASET CANCEL

Type here to search

98% 29°C ENG IN 10:37 AM 2/15/2024

# Configure the page and scroll down the page



The screenshot shows the Google Cloud console interface for configuring a Pub/Sub subscription. The browser address bar displays the URL: `https://console.cloud.google.com/cloudpubsub/topic/addSubscription/share-app?hl=en&project=root-fort-413213`. The left sidebar shows the navigation menu with 'Pub/Sub' selected, and 'Topics' is the active sub-section. The main content area is titled 'Add subscription to topic' and contains the following configuration options:

- Project:** root-fort-413213 (with a [BROWSE](#) button)
- Dataset \*:** Analyze
- Table \*:** Datastore

Below the table field, a note states: "Maximum name size is 1,024 UTF-8 bytes. Unicode letters, marks, numbers, connectors, dashes, and spaces are allowed."

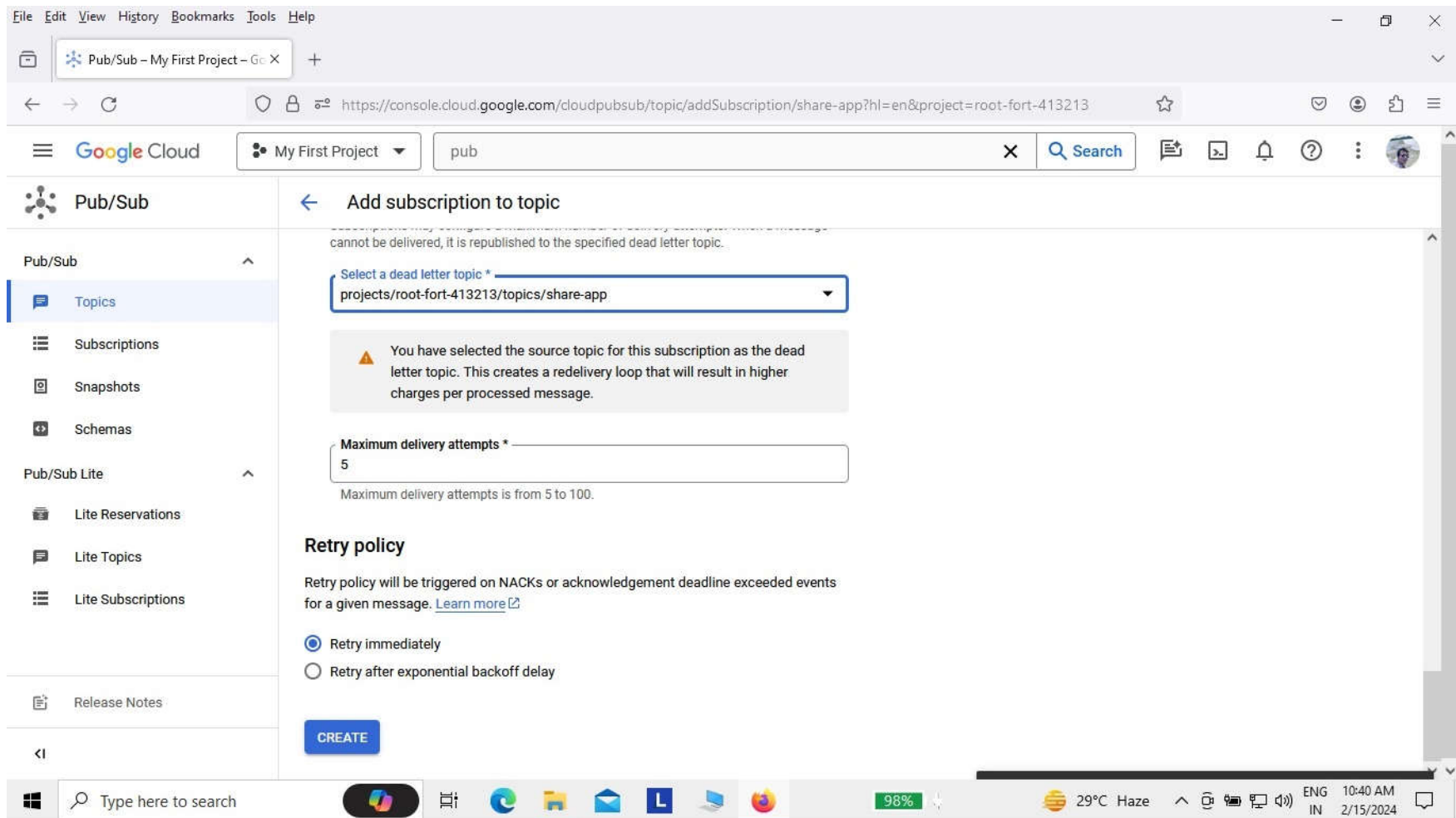
A message indicates: "To create a new table, [navigate to BigQuery](#), then return to create your subscription."

The **Schema Option** section includes the following options:

- ☒ **None**  
Pub/Sub will write the message bytes to a column called `data` of the selected BigQuery table.
- ☐ **Use Topic Schema**  
Pub/Sub will use the schema of the attached topic.
- ☐ **Use Table Schema**  
Pub/Sub will use the schema of the BigQuery Table.
- ☐ **Write metadata**  
When enabled, the metadata of each message is written to additional columns in the BigQuery table. Else, the metadata is not written to the BigQuery table. [Learn more](#)
- ☐ **Drop unknown fields**  
When enabled along with one of the Use Schema options, any field that is present in

The Windows taskbar at the bottom shows the system clock as 10:38 AM on 2/15/2024, with a battery level of 98% and a weather forecast of 29°C Haze.

# Click the create button. Now successfully link with the BigQuery.



# 4. Create the Cloud Function

The screenshot shows the Google Cloud console interface for creating a new Cloud Function. The browser address bar displays the URL `https://console.cloud.google.com/functions/add?project=root-fort-413213`. The page title is "Create function - Cloud Functions". The "My First Project" dropdown is set to "cloud fu". The "Search" bar is empty. The "Cloud Functions" breadcrumb is active, and the "Create function" button is visible. The "Configuration" tab is selected, showing the "Basics" section. The "Environment" dropdown is set to "2nd gen". The "Function name" field contains "shareproject-1". The "Region" dropdown is set to "us-central1 (Iowa)". The "Trigger" section shows the "Trigger type" as "HTTPS" and the "URL" as "https://us-central1-root-fort-413213.cloudfunctions.net/shareproject-1". The "Authentication" section is collapsed. The "NEXT" button is highlighted in blue, and the "CANCEL" button is in grey. The Windows taskbar at the bottom shows the time as 17:58 on 26-02-2024.

1 Configuration — 2 Code

**Basics**

Environment  
2nd gen

Function name \*  
shareproject-1

Region \*  
us-central1 (Iowa)

**Trigger**

Trigger type  
HTTPS

URL  
https://us-central1-root-fort-413213.cloudfunctions.net/shareproject-1

Authentication

NEXT CANCEL

Go to search bar page and type cloud function and click the cloud function button. Give a name and click the next button.

# Select the runtime and version then change code and deploy the cloud function

The screenshot displays the Google Cloud Functions console interface for creating a new function. The browser address bar shows the URL: `https://console.cloud.google.com/functions/add?project=root-fort-413213&cloudshell=true`. The page title is "Create function - Cloud Functions".

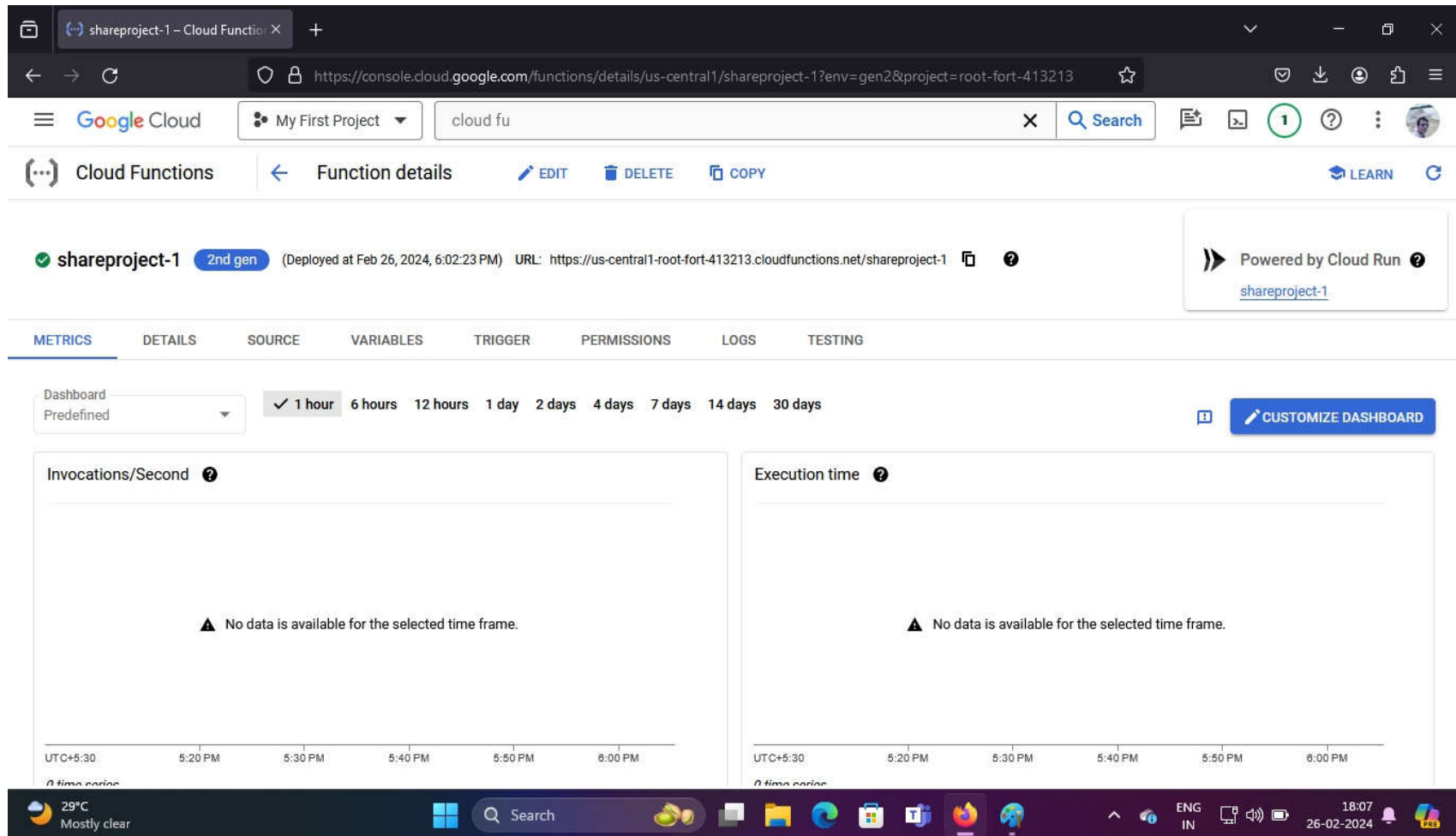
The interface is divided into several sections:

- Configuration:** Shows the "Runtime" set to "Python 3.12" and the "Entry point" set to "hello\_http". A "TEST FUNCTION" button is visible.
- Code:** The "Source code" section is active, showing the "Inline Editor". The file list on the left includes "main.py" and "requirements.txt". The code editor displays the following Python code:

```
6 Args:
7     request (flask.Request): The request object.
8     <https://flask.palletsprojects.com/en/1.1.x/api/#incoming-request>
9 Returns:
10    The response text, or any set of values that can be turned into a
11    Response object using `make_response`
12    <https://flask.palletsprojects.com/en/1.1.x/api/#flask.make_response>
13 """
14 request_json = request.get_json(silent=True)
15 request_args = request.args
16
17 if request_json and 'share-app' in request_json:
18     name = request_json['share-app']
19 elif request_args and 'share-app' in request_args:
20     name = request_args['share-app']
21 else:
22     name = 'World'
```
- Configure preview:** A "PREVIEW" button is present, and a message states "Function is ready to be tested."
- Triggering event:** A section for defining the triggering event, showing a sample JSON payload: `{ "name": "Hello World" }`.

At the bottom of the configuration section, there are buttons for "PREVIOUS", "DEPLOY", and "CANCEL". The bottom of the screen shows a Windows taskbar with the date "26-02-2024" and time "18:04".

# Successfully the deploy the cloud function.



# Go to pub/sub page and click the subscription button then create a subscription and give a name project-1

The screenshot shows the Google Cloud console interface for creating a new subscription. The left sidebar displays the navigation menu with 'Pub/Sub' selected. The main content area is titled 'Add subscription to topic' and includes the following details:

- Subscription ID \***: project-1 (Subscription name: projects/root-fort-413213/subscriptions/project-1)
- Topic name**: projects/root-fort-413213/topics/share-app2
- Delivery type**:
  - ☐ Pull
  - ☒ Push
  - ☐ Write to BigQuery (A variant of the push operation. Select this option if you want Pub/Sub to deliver messages directly to an existing BigQuery table. [Learn more](#))
  - ☐ Write to Cloud Storage (A variant of the push operation. Select this option if you want Pub/Sub to deliver messages directly to an existing Cloud Storage bucket. [Learn more](#))
- Endpoint URL \***: https://us-central1-root-fort-413213.cloudfunctions.net/shareproject-1
- ☐ Enable authentication [Learn more](#)

The bottom of the image shows a Windows taskbar with the date 27-02-2024 and time 10:47.



# Scroll down the page and configure then click the create button

The screenshot shows the Google Cloud console interface. The browser tabs at the top include 'Add subscription to topic - Pub/Sub' and 'Cloud Functions - My First Project'. The address bar shows the URL: <https://console.cloud.google.com/cloudpubsub/topic/addSubscription/share-app2?project=root-fort-413213>. The Google Cloud logo and 'My First Project' are visible in the header.

The left sidebar contains a navigation menu with the following items:

- Pub/Sub
  - Topics
  - Subscriptions
  - Snapshots
  - Schemas
- Pub/Sub Lite
  - Lite Reservations
  - Lite Topics
  - Lite Subscriptions
- Release Notes

The main content area is titled 'Add subscription to topic'. It includes a warning message: 'The message's acknowledgement deadline expires: Acknowledged messages will not be resent to the subscription. Default acknowledgement deadline will be increased to the recommended minimum of 60 seconds. [Learn more](#)'.

The configuration section contains three main settings:

- 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

A blue 'CREATE' button is located at the bottom of the configuration section.

The Windows taskbar at the bottom shows the system clock as 10:48 on 27-02-2024, with a weather widget indicating 31°C Sunny.



# Now processing the subscription page

The screenshot shows the Google Cloud console interface for adding a subscription to a topic. The browser address bar indicates the URL: `https://console.cloud.google.com/cloudpubsub/topic/addSubscription/share-app2?project=root-fort-413213`. The left sidebar contains the navigation menu with the following items:

- Pub/Sub
  - Topics (selected)
  - Subscriptions
  - Snapshots
  - Schemas
- Pub/Sub Lite
  - Lite Reservations
  - Lite Topics
  - Lite Subscriptions
- Release Notes

The main content area is titled "Add subscription to topic" and displays the following configuration options:

- 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

At the bottom of the main content area, there is a status indicator: **PROCESSING...**

The Windows taskbar at the bottom shows the system clock as 10:49 on 27-02-2024, with the language set to ENG IN.

# Successfully the create the subscription page

The screenshot displays the Google Cloud console interface for a subscription. The browser address bar shows the URL: <https://console.cloud.google.com/cloudpubsub/subscription/detail/project-1?project=root-fort-413213&tab=overview>. The page title is "project-1 - Pub/Sub - My First Project".

The left sidebar contains the navigation menu with the following items:

- Pub/Sub
  - Topics
  - Subscriptions**
  - Snapshots
  - Schemas
- Pub/Sub Lite
  - Lite Reservations
  - Lite Topics
  - Lite Subscriptions
- Release Notes

The main content area shows the details for the subscription "project-1". The subscription name is "projects/root-fort-413213/subscriptions/project-1". The subscription state is "active". The topic name is "projects/root-fort-413213/topics/share-app2".

The "METRICS" tab is selected, showing the "Overview" view. The "Oldest unacked message age" is displayed as "No data is available for the selected time frame." The "DETAILS" and "MESSAGES" tabs are also visible.

The right sidebar shows the "PERMISSIONS" tab for "project-1". It includes a section for "ADD PRINCIPAL" and a list of permissions:

- Cloud Build Service Agent (1)
- Cloud Functions Service Agent (1)
- Editor (3)
- Owner (1)

The bottom of the image shows the Windows taskbar with the date and time: 10:50, 27-02-2024.

## 5. Create the new pub/sub topic and give a name share-app2

The screenshot displays the Google Cloud Console interface for creating a new Pub/Sub topic. The browser address bar shows the URL: <https://console.cloud.google.com/cloudpubsub/topic/create?project=root-fort-413213>. The page title is "Create topic - Pub/Sub - My First Project".

The left sidebar shows the "Pub/Sub" section with the "Topics" tab selected. The main content area is titled "Create topic".

The "Topic ID" field is set to "share-app2". Below this, the "Topic name" is displayed as "projects/root-fort-413213/topics/share-app2".

The configuration options include:

- ☒ Add a default subscription
- ☐ Use a schema
- ☐ Enable message retention

The "Encryption" section shows the "Google-managed encryption key" selected, with the note "No configuration required". The "Customer-managed encryption key (CMEK)" option is also visible, with a link to "Manage via Google Cloud Key Management Service".

A "PROCESSING..." status indicator is shown at the bottom of the configuration area.

A survey pop-up is displayed on the right, titled "Overall, how satisfied are you with Google Cloud PubSub?". The survey options are:

- Very satisfied
- Somewhat satisfied
- Neither satisfied nor dissatisfied
- Somewhat dissatisfied
- Very dissatisfied

The "NEXT" button is visible at the bottom right of the survey pop-up.

At the bottom of the screen, the Windows taskbar shows the system tray with the date "27-02-2024" and time "10:39".

Scroll down page then click create button. Now processing the page and successfully create the topic

The screenshot shows the Google Cloud Console interface for the 'share-app2' topic. The page is titled 'share-app2' and includes navigation links for 'EDIT', 'TRIGGER CLOUD FUNCTION', 'IMPORT', and 'DELETE'. The 'Topic name' is 'projects/root-fort-413213/topics/share-app2'. There are two export options: 'Export to BigQuery' and 'Export to Cloud Storage', both with 'EXPORT DATA' buttons. The 'PERMISSIONS' tab is active, showing a list of roles and principals. The 'SUBSCRIPTIONS' tab is also visible, showing a table with columns for Subscription ID, Subscription name, and Project. The bottom of the page shows the Windows taskbar with the date 27-02-2024 and time 10:42.

Google Cloud console showing the 'share-app2' topic page. The page displays the topic name, export options to BigQuery and Cloud Storage, and a list of permissions. The 'SUBSCRIPTIONS' tab is active, showing a table with columns for Subscription ID, Subscription name, and Project.

Topic name: projects/root-fort-413213/topics/share-app2

Export to BigQuery: Export data to a BigQuery table. EXPORT DATA

Export to Cloud Storage: Export data to a text or Avro file in Cloud Storage. EXPORT DATA

Permissions: Edit or delete permissions below, or select "Add Principal" to grant new access. ADD PRINCIPAL

Filter: Enter property name or value

Role / Principal: Inheritance

Artifact Registry Service Agent (1)

Cloud Build Service Account (1)

Cloud Build Service Agent (1)

Cloud Functions Service Agent (1)

Cloud Scheduler Service Agent (1)

Container Registry Service Agent (1)

Editor (3)

Owner (1)

Subscriptions: 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 EXPORT

Filter: Filter subscriptions

Subscription ID Subscription name Project

Now click the trigger function on share-app2 page and configure then deploy the function page

The screenshot shows the Google Cloud Console interface. The main page displays the 'share-app2' topic details, including a table of subscriptions. The 'CREATE SUBSCRIPTION' and 'EXPORT' buttons are visible. The 'Create function' dialog is open on the right, showing the 'Basics' and 'Trigger' sections. The 'Trigger' section is configured with 'Trigger type' set to 'Cloud Pub/Sub' and 'Cloud Pub/Sub topic' set to 'projects/root-fort-413213/topics/share-app2'. The 'Deploy Function' button is highlighted.

**Basics**

- Environment: 2nd gen
- Function name: function-1
- Region: us-central1 (Iowa)

**Trigger**

- Trigger type: Cloud Pub/Sub
- Cloud Pub/Sub topic: projects/root-fort-413213/topics/share-app2
- ☐ Retry on failure

**Deploy Function** CANCEL

Subscription ID	Subscription name	Project
<a href="#">project-1</a>	projects/root-fort-413213/subscriptions/pr...	root-fort-413...
<a href="#">share-app2-sub</a>	projects/root-fort-413213/subscriptions/s...	root-fort-413...

# Successfully the create a function

The screenshot displays the Google Cloud Functions console interface. At the top, the browser address bar shows the URL `https://console.cloud.google.com/functions/list?project=root-fort-413213`. The Google Cloud header includes the project name 'My First Project' and a search bar. The main navigation bar features the 'Cloud Functions' title, a 'Functions' tab, and buttons for 'CREATE FUNCTION' and 'REFRESH'. Below this, a 'Filter' section allows filtering functions. The main content area is a table listing deployed functions.

<input type="checkbox"/>	Environment	Name ↑	Last deployed	Region	Recommendation	Trigger	Runtime	Memory allocated	Executed function	Actions
<input type="checkbox"/>	2nd gen	<a href="#">function-1</a>	Feb 27, 2024, 10:57:15 AM	us-central1		—	Python 3.12	—	hello_pubsub	⋮
<input type="checkbox"/>	2nd gen	<a href="#">shareproject-1</a>	Feb 26, 2024, 6:02:23 PM	us-central1		HTTP	Python 3.12	256 MiB	hello_http	⋮

The Windows taskbar at the bottom shows the system clock at 11:01 on 27-02-2024, with a temperature of 31°C and 'Sunny' weather.