



**Cloud Computing
(SOFE 4630U)**

Project Milestone 2: Data Storage: KV + Relational

Name	Student ID
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Due Date: February 2, 2025

GitHub Link:

<https://github.com/rohanradadiya/Cloud-Computing-Project-MS-2>

Video Link 1: <https://youtu.be/Y4P54y7LERo>

Video Link 2: <https://youtu.be/Fl31z1pZ5iA>

Screenshots:

```

CLOUD SHELL
Terminal (sodium-sublime-448820-j1) x + v

Welcome to Cloud Shell! Type "help" to get started.
Your Cloud Platform project in this session is set to sodium-sublime-448820-j1.
Use 'gcloud config set project [PROJECT_ID]' to change to a different project.
roharadadiya@cloudshell:~ (sodium-sublime-448820-j1) $ gcloud config set compute/zone northamerica-northeast1-b
API [compute.googleapis.com] not enabled on project [sodium-sublime-448820-j1]. Would you like to enable and retry (this will take a few minutes)? (y/N)? y

Enabling service [compute.googleapis.com] on project [sodium-sublime-448820-j1]...
nn

Operation "operations/acf.p2-1030215290166-1e42d43f-7600-4515-8760-38197f052ee5" finished successfully.
WARNING: Property validation for compute/zone was skipped.
Updated property [compute/zone].
roharadadiya@cloudshell:~ (sodium-sublime-448820-j1) $ nn
-bash: nn: command not found
roharadadiya@cloudshell:~ (sodium-sublime-448820-j1) $
roharadadiya@cloudshell:~ (sodium-sublime-448820-j1) $

```

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roharadadiya@cloudshell:~ (sodium-sublime-448820-j1) $ gcloud container clusters create sofef4630u --num-nodes=3
Note: The kubelet readonly port (10255) is now deprecated. Please update your workloads to use the recommended alternatives. See https://cloud.google.com/kubernetes-engine/docs/how-to/disable-kubelet-readonly-port for ways to check usage and for migration instructions.
Note: Your Pod address range ("--cluster-ip-cidr") can accommodate at most 1008 node(s).
Creating cluster sofef4630u in northamerica-northeast1-b... Cluster is being health-checked (Kubernetes Control Plane is healthy)...done.
Created (https://container.googleapis.com/v1/projects/sodium-sublime-448820-j1/zones/northamerica-northeast1-b/clusters/sofef4630u).
To inspect the contents of your cluster, go to: https://console.cloud.google.com/kubernetes/workload/_gcloud/northamerica-northeast1-b/sofef4630u?project=sodium-sublime-448820-j1
kubeconfig entry generated for sofef4630u.
NAME: sofef4630u
LOCATION: northamerica-northeast1-b
MASTER_VERSION: 1.31.4-gke.1183000
MASTER_IP: 34.95.46.206
MACHINE_TYPE: e2-medium
NODE_VERSION: 1.31.4-gke.1183000
NUM_NODES: 3
STATUS: RUNNING
roharadadiya@cloudshell:~ (sodium-sublime-448820-j1) $

```

```

roharadadiya@cloudshell:~ (sodium-sublime-448820-j1) $ cd ~ # Go to home directory
git clone https://github.com/zubxxr/SOFE4630U-MS2.git
Cloning into 'SOFE4630U-MS2'...
remote: Enumerating objects: 705, done.
remote: Counting objects: 100% (87/87), done.
remote: Compressing objects: 100% (77/77), done.
remote: Total 705 (delta 49), reused 10 (delta 10), pack-reused 618 (from 1)
Receiving objects: 100% (705/705), 24.58 MiB | 24.01 MiB/s, done.
Resolving deltas: 100% (214/214), done.
roharadadiya@cloudshell:~ (sodium-sublime-448820-j1) $ cd ~/SOFE4630U-MS2/mysql
roharadadiya@cloudshell:~/SOFE4630U-MS2/mysql (sodium-sublime-448820-j1) $ kubectl create -f mysql-deploy.yaml
deployment.apps/mysql-deployment created
roharadadiya@cloudshell:~/SOFE4630U-MS2/mysql (sodium-sublime-448820-j1) $

```

```

roharadadiya@cloudshell:~/SOFE4630U-MS2/mysql (sodium-sublime-448820-j1) $ kubectl get deployment
NAME READY UP-TO-DATE AVAILABLE AGE
mysql-deployment 1/1 1 1 9m34s
roharadadiya@cloudshell:~/SOFE4630U-MS2/mysql (sodium-sublime-448820-j1) $ kubectl get deployment --watch
NAME READY UP-TO-DATE AVAILABLE AGE
mysql-deployment 1/1 1 1 9m51s
^C
roharadadiya@cloudshell:~/SOFE4630U-MS2/mysql (sodium-sublime-448820-j1) $ kubectl get pods
NAME READY STATUS RESTARTS AGE
mysql-deployment-7d8b86b799-px7ch 1/1 Running 0 11m
roharadadiya@cloudshell:~/SOFE4630U-MS2/mysql (sodium-sublime-448820-j1) $

```

```

roharadadiya@cloudshell:~/SOFE4630U-MS2/mysql (sodium-sublime-448820-j1)$ kubectl get services
NAME      TYPE      CLUSTER-IP      EXTERNAL-IP      PORT(S)      AGE
kubernetes  ClusterIP  34.118.224.1     <none>           443/TCP      65m
mysql-service  LoadBalancer  34.118.239.101   <pending>        3306:30478/TCP  6s
roharadadiya@cloudshell:~/SOFE4630U-MS2/mysql (sodium-sublime-448820-j1)$ kubectl get services --watch
NAME      TYPE      CLUSTER-IP      EXTERNAL-IP      PORT(S)      AGE
kubernetes  ClusterIP  34.118.224.1     <none>           443/TCP      66m
mysql-service  LoadBalancer  34.118.239.101   <pending>        3306:30478/TCP  34s
mysql-service  LoadBalancer  34.118.239.101   34.47.52.145     3306:30478/TCP  37s
^C
roharadadiya@cloudshell:~/SOFE4630U-MS2/mysql (sodium-sublime-448820-j1)$ kubectl get services
NAME      TYPE      CLUSTER-IP      EXTERNAL-IP      PORT(S)      AGE
kubernetes  ClusterIP  34.118.224.1     <none>           443/TCP      66m
mysql-service  LoadBalancer  34.118.239.101   34.47.52.145     3306:30478/TCP  78s
roharadadiya@cloudshell:~/SOFE4630U-MS2/mysql (sodium-sublime-448820-j1)$ kubectl get services
NAME      TYPE      CLUSTER-IP      EXTERNAL-IP      PORT(S)      AGE
kubernetes  ClusterIP  34.118.224.1     <none>           443/TCP      67m
mysql-service  LoadBalancer  34.118.239.101   34.47.52.145     3306:30478/TCP  86s
roharadadiya@cloudshell:~/SOFE4630U-MS2/mysql (sodium-sublime-448820-j1)$ kubectl get pods
NAME      READY   STATUS    RESTARTS   AGE
mysql-deployment-7d8b86b799-px7ch  1/1     Running   0           59m
roharadadiya@cloudshell:~/SOFE4630U-MS2/mysql (sodium-sublime-448820-j1)$ kubectl get services
NAME      TYPE      CLUSTER-IP      EXTERNAL-IP      PORT(S)      AGE
kubernetes  ClusterIP  34.118.224.1     <none>           443/TCP      69m
mysql-service  LoadBalancer  34.118.239.101   34.47.52.145     3306:30478/TCP  3m55s
roharadadiya@cloudshell:~/SOFE4630U-MS2/mysql (sodium-sublime-448820-j1)$ 

```

```

roharadadiya@cloudshell:~/SOFE4630U-MS2/mysql (sodium-sublime-448820-j1)$ mysql -uusr -pscfe4630u -h34.47.52.145
mysql: [Warning] Using a password on the command line interface can be insecure.
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 8
Server version: 8.0.32 MySQL Community Server - GPL

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owners.

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

mysql> 

```

```

mysql> USE Readings;
Database changed
mysql>
mysql> CREATE TABLE meterType (
  ->   ID INT PRIMARY KEY,
  ->   type VARCHAR(50),
  ->   cost FLOAT
  -> );
Query OK, 0 rows affected (0.06 sec)

mysql>
mysql> INSERT INTO meterType VALUES(1, 'boston', 100.5);
Query OK, 1 row affected (0.05 sec)

mysql> INSERT INTO meterType VALUES(2, 'denver', 120);
Query OK, 1 row affected (0.03 sec)

mysql> INSERT INTO meterType VALUES(3, 'losang', 155);
Query OK, 1 row affected (0.04 sec)

mysql>
mysql> SELECT * FROM meterType WHERE cost >= 110;
+----+-----+-----+
| ID | type  | cost |
+----+-----+-----+
| 2  | denver | 120  |
| 3  | losang | 155  |
+----+-----+-----+
2 rows in set (0.02 sec)

mysql> 

```

```

mysql> EXIT;
Bye
roharadadiya@cloudshell:~/SOFE4630U-MS2/mysql (sodium-sublime-448820-j1)$ 

```

Deploy Redis Using GKE:

```
roharadadiya@cloudshell:~/SOFE4630U-MS2/mysql (sodium-sublime-448820-j1)$ cd ~/SOFE4630U-MS2/Redis
kubectl create -f redis.yaml
service/redis created
deployment.apps/redis created
roharadadiya@cloudshell:~/SOFE4630U-MS2/Redis (sodium-sublime-448820-j1)$ find ~ -type d -name "SOFE4630U-MS2"
/home/roharadadiya/SOFE4630U-MS2
roharadadiya@cloudshell:~/SOFE4630U-MS2/Redis (sodium-sublime-448820-j1)$ kubectl create -f redis.yaml
Error from server (AlreadyExists): error when creating "redis.yaml": services "redis" already exists
Error from server (AlreadyExists): error when creating "redis.yaml": deployments.apps "redis" already exists
roharadadiya@cloudshell:~/SOFE4630U-MS2/Redis (sodium-sublime-448820-j1)$ kubectl delete -f redis.yaml
kubectl create -f redis.yaml
service "redis" deleted
deployment.apps "redis" deleted
service/redis created
deployment.apps/redis created
roharadadiya@cloudshell:~/SOFE4630U-MS2/Redis (sodium-sublime-448820-j1)$ kubectl get services
NAME          TYPE          CLUSTER-IP      EXTERNAL-IP      PORT(S)          AGE
kubernetes    ClusterIP     34.118.224.1     <none>           443/TCP          77m
mysql-service  LoadBalancer 34.118.239.101   34.47.52.145     3306:30478/TCP   11m
redis         LoadBalancer 34.118.238.121   <pending>        6379:32170/TCP   20s
roharadadiya@cloudshell:~/SOFE4630U-MS2/Redis (sodium-sublime-448820-j1)$ roharadadiya@cloudshell:~/SOFE4630U-MS2/Redis (sodium-sublime-448820-j1)$ kubectl get services
NAME          TYPE          CLUSTER-IP      EXTERNAL-IP      PORT(S)          AGE
kubernetes    ClusterIP     34.118.224.1     <none>           443/TCP          77m
mysql-service  LoadBalancer 34.118.239.101   34.47.52.145     3306:30478/TCP   11m
redis         LoadBalancer 34.118.238.121   <pending>        6379:32170/TCP   20s
roharadadiya@cloudshell:~/SOFE4630U-MS2/Redis (sodium-sublime-448820-j1)$
-bash: syntax error near unexpected token `sodium-sublime-448820-j1'
-bash: syntax error near unexpected token `{ '
-bash: none: No such file or directory
-bash: mysql-service: command not found
-bash: pending: No such file or directory
-bash: syntax error near unexpected token `sodium-sublime-448820-j1'
roharadadiya@cloudshell:~/SOFE4630U-MS2/Redis (sodium-sublime-448820-j1)$ kubectl get services
```

```
roharadadiya@cloudshell:~/SOFE4630U-MS2/Redis (sodium-sublime-448820-j1)$ kubectl get services
NAME          TYPE          CLUSTER-IP      EXTERNAL-IP      PORT(S)          AGE
kubernetes    ClusterIP     34.118.224.1     <none>           443/TCP          78m
mysql-service  LoadBalancer 34.118.239.101   34.47.52.145     3306:30478/TCP   12m
redis         LoadBalancer 34.118.238.121   34.47.49.77      6379:32170/TCP   72s
roharadadiya@cloudshell:~/SOFE4630U-MS2/Redis (sodium-sublime-448820-j1)$ redis-cli -h 34.47.49.77 -a sofe4630u
Warning: Using a password with '-a' or '-u' option on the command line interface may not be safe.
34.47.49.77:6379> []
```

```
roharadadiya@cloudshell:~/SOFE4630U-MS2/Redis (sodium-sublime-448820-j1)$ redis-cli -h 34.47.49.77 -a sofe4630u
Warning: Using a password with '-a' or '-u' option on the command line interface may not be safe.
34.47.49.77:6379> select 0
OK
34.47.49.77:6379> select 0
OK
34.47.49.77:6379> set var 100
OK
34.47.49.77:6379> get var
"100"
34.47.49.77:6379> keys *
1) "var"
34.47.49.77:6379> del var
(integer) 1
34.47.49.77:6379> keys *
(empty array)
34.47.49.77:6379> exit
roharadadiya@cloudshell:~/SOFE4630U-MS2/Redis (sodium-sublime-448820-j1)$
```

```
Downloading redis-5.2.1-py3-none-any.whl.metadata (9.1 kB)
Downloading redis-5.2.1-py3-none-any.whl (261 kB)
Image sentya@cloudshell:~/SOFE4630U-MS2/Redis/code (sodium-sublime-448820-j1)$ python SendImage.py
roharadadiya@cloudshell:~/SOFE4630U-MS2/Redis/code (sodium-sublime-448820-j1)$
```

```
roharadadiya@cloudshell:~/SOFE4630U-MS2/Redis (sodium-sublime-448820-j1)$ pip install redis
Defaulting to user installation because normal site-packages is not writeable
Collecting redis
  Downloading redis-5.2.1-py3-none-any.whl.metadata (9.1 kB)
  Downloading redis-5.2.1-py3-none-any.whl (261 kB)
Warning: Using a password with '-a' or '-u' option on the command line interface may not be safe.
(redis-cli -h 34.47.49.77 -a sofe4630u keys *)
(error) ERR wrong number of arguments for 'keys' command
Warning: Using a password with '-a' or '-u' option on the command line interface may not be safe.
(redis-cli -h 34.47.49.77 -a sofe4630u keys '')
1) "OntarioTech"
Image recieved, check ./recieved.jpg
total 1016y@cloudshell:~/SOFE4630U-MS2/Redis/code (sodium-sublime-448820-j1)$ ls -l
-rw-rw-r-- 1 roharadadiya roharadadiya 515025 Jan 30 19:53 ontarioTech.jpg
-rw-rw-r-- 1 roharadadiya roharadadiya 275 Jan 30 21:19 ReceiveImage.py
-rw-rw-r-- 1 roharadadiya roharadadiya 515025 Jan 30 21:21 recieved.jpg
-rw-rw-r-- 1 roharadadiya roharadadiya 246 Jan 30 21:17 SendImage.py
roharadadiya@cloudshell:~/SOFE4630U-MS2/Redis/code (sodium-sublime-448820-j1)$
```

Free trial status: \$432.35 credit and 85 days remaining. Activate your full account to get unlimited access to all of Google Cloud—use any remaining credits, then pay only for what you use. Dismiss Activate

Google Cloud My First Project connectors Search

Integration Connectors / Overview / Connections / Connection: mysql-connector

Overview **Connections** Endpoint Attac... Managed Zones Regions Custom Conne... Marketplace c...

mysql-connector EDIT SUSPEND REFRESH CONNECTION SCHEMA LOCK

Connector MySQL MySQL 1	Status Active Last checked at 4:44 PM	Authentication User Password Username and Password based authentication	Location northamerica-northeast2
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Connection Details

Description

Connector
Version 1
MySQL connector

Service Account
1030215290166-compute@developer.gserviceaccount.com

☐ Enable Cloud Logging
Collect logs emitted by your connection. See [pricing information](#).

Database Name
Readings

CLOUD SHELL Terminal (sodium-sublime-448820-j1) + Open Editor

```
roharadadiya@cloudshell:~/SOFE4630U-MS2/Redis/code (sodium-sublime-448820-j1)$ mysql -uusr -psofe4630u -h 34.47.52.145
mysql: [Warning] Using a password on the command line interface can be insecure.
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 22
Server version: 8.0.32 MySQL Community Server - GPL

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

mysql> USE Readings;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A
```

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

mysql> USE Readings;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
mysql> CREATE TABLE SmartMeter (
  ->   ID INT PRIMARY KEY,
  ->   time BIGINT,
  ->   profile_name VARCHAR(100),
  ->   temperature DOUBLE,
  ->   humidity DOUBLE,
  ->   pressure DOUBLE
  -> );
Query OK, 0 rows affected (0.11 sec)

mysql> EXIT;
Bye
roharadadiya@cloudshell:~/SOFE4630U-MS2/Redis/code (sodium-sublime-448820-j1)$
```

```
roharadadiya@cloudshell:~/SOFE4630U-MS2/Redis/code (sodium-sublime-448820-j1)$ gcloud pubsub topics create smartMeterReadings
Created topic [projects/sodium-sublime-448820-j1/topics/smartMeterReadings].
roharadadiya@cloudshell:~/SOFE4630U-MS2/Redis/code (sodium-sublime-448820-j1)$
```

Created topic smartMeterReadings:

```
roharadadiya@cloudshell:~/SOFE4630U-MS2/Redis/code (sodium-sublime-448820-j1)$ mysql -uusr -psofe4630u -h34.47.52.145
mysql: [Warning] Using a password on the command line interface can be insecure.
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 45
Server version: 8.0.32 MySQL Community Server - GPL

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

mysql> use Readings;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
mysql> select * from SmartMeter;
+-----+-----+-----+-----+-----+-----+
| ID | time | profile_name | temperature | humidity | pressure |
+-----+-----+-----+-----+-----+-----+
| -1 | 1253145 | test | 50 | 60 | 1 |
+-----+-----+-----+-----+-----+
1 row in set (0.03 sec)

mysql>
```

1 row in set (0.03 sec)

my

By

Ro

Published version. Recently published changes may take up to 10 mins to fully propagate.

✕

Published/deployed the integration.

```

PS C:\Users\rohan\Documents\COH1estone2> python -m pip install numpy
Defaulting to user installation because normal site-packages is not writeable
Collecting numpy
  Downloading numpy-2.2.2-cp312-cp312-win_amd64.whl.metadata (60 kB)
    Downloading numpy-2.2.2-cp312-cp312-win_amd64.whl (12.6 MB)
      12.6/12.6 MB 5.4 MB/s eta 0:00:00
Installing collected packages: numpy
  WARNING: The scripts f2py.exe and numpy-config.exe are installed in 'C:\Users\rohan\AppData\Local\Programs\Python\Python312\Scripts' which is not on PATH.
  Consider adding this directory to PATH or, if you prefer to suppress this warning, use --no-warn-script-location.
Successfully installed numpy-2.2.2

[notice] A new release of pip is available: 24.2 -> 24.3.1
[notice] To update, run: python.exe -m pip install --upgrade pip
PS C:\Users\rohan\Documents\COH1estone2> python smartMeter.py
>>>
Published messages with ordering keys to projects/sodium-sublime-448820-j1/topics/smartMeterReadings.
The message ('ID': 2691325, 'time': 1738280487, 'profile_name': 'losang', 'temperature': 55.175285854864195, 'humidity': 15.233047909651276, 'pressure': 1.209529606962017) has been published successfully.
The message ('ID': 2691326, 'time': 1738280488, 'profile_name': 'losang', 'temperature': 73.84834612473986, 'humidity': 61.78639836969849, 'pressure': 1.2985767181877947) has been published successfully.
The message ('ID': 2691327, 'time': 1738280488, 'profile_name': 'losang', 'temperature': 56.93456957438543, 'humidity': 68.26862850842086, 'pressure': None) has been published successfully.
The message ('ID': 2691328, 'time': 1738280489, 'profile_name': 'denver', 'temperature': 48.534467885336795, 'humidity': 49.993352714728986, 'pressure': 0.9937522845534149) has been published successfully.
The message ('ID': 2691329, 'time': 1738280490, 'profile_name': 'boston', 'temperature': 55.373616917686704, 'humidity': 100, 'pressure': 1.0674843882857694) has been published successfully.
The message ('ID': 2691330, 'time': 1738280490, 'profile_name': 'denver', 'temperature': None, 'humidity': 55.08595787484913, 'pressure': 1.3329935529217165) has been published successfully.
The message ('ID': 2691331, 'time': 1738280491, 'profile_name': 'boston', 'temperature': 65.84384589662354, 'humidity': 58.672378812668516, 'pressure': 1.031084966643844) has been published successfully.
The message ('ID': 2691332, 'time': 1738280492, 'profile_name': 'denver', 'temperature': 46.5487089839977, 'humidity': 29.221858479709397, 'pressure': 2.0278344678669994) has been published successfully.
The message ('ID': 2691333, 'time': 1738280492, 'profile_name': 'boston', 'temperature': None, 'humidity': 66.1924511288892, 'pressure': 0.978372382467172) has been published successfully.
The message ('ID': 2691334, 'time': 1738280493, 'profile_name': 'denver', 'temperature': None, 'humidity': 31.914987870167786, 'pressure': 1.2931875654502487) has been published successfully.
The message ('ID': 2691335, 'time': 1738280493, 'profile_name': 'denver', 'temperature': 21.365972177668457, 'humidity': 51.74118946899584, 'pressure': 1.0271977179777116) has been published successfully.
The message ('ID': 2691336, 'time': 1738280494, 'profile_name': 'boston', 'temperature': 25.881946923887373, 'humidity': 87.79192866846864, 'pressure': None) has been published successfully.
The message ('ID': 2691337, 'time': 1738280495, 'profile_name': 'denver', 'temperature': 61.8218735468895, 'humidity': None, 'pressure': None) has been published successfully.
The message ('ID': 2691338, 'time': 1738280495, 'profile_name': 'denver', 'temperature': 49.234825326380286, 'humidity': 39.4899397527586, 'pressure': None) has been published successfully.
The message ('ID': 2691339, 'time': 1738280496, 'profile_name': 'losang', 'temperature': 59.67228649374192, 'humidity': 75.9559432945424, 'pressure': 1.358782729793609) has been published successfully.

```

Messages being published successfully.

```

118.1/118.1 KB 10.1 MB/s eta 0:00:00
Downloading opentelemetry_semantic_conventions-0.50b0-py3-none-any.whl (166 kB)
166.0/166.0 KB 10.3 MB/s eta 0:00:00
Installing collected packages: opentelemetry-semantic-conventions, opentelemetry-sdk, google-cloud-pubsub
Successfully installed google-cloud-pubsub-2.27.3 opentelemetry-sdk-1.29.0 opentelemetry-semantic-conventions-0.50b0
roharadadiya@cloudshell:~/SOFE46300-MS2/MySQL-connector (sodium-sublime-448820-j1)$ python3 smartMeter.py
Traceback (most recent call last):
  File "smartMeter.py", line 12, in <module>
    connector = files[0]
  File "connector (sodium-sublime-448820-j1).py", line 12, in <module>
    connector = files[0]
Unpublished version.

```

It was unpublished after, as instructed to save credits on the account.

Free trial status: \$432.34 credit and 85 days remaining. Activate your full account to get unlimited access to all of Google Cloud—use any remaining credits, then pay only for what you use. Dismiss Activate

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Integration Connectors / Overview / Connections

Overview **Connections** CREATE NEW LEARN

Filter Connection name or connector

Name	Connector	Connector version	Status	Logs	Event Subscription	Labels	Location	Actions
mysql-connector	MySQL	1	Active	Disabled	Not supported		northamerica-northeast2	
redis-connector	Redis	1	Active	Disabled	Not supported		northamerica-northeast2	

Marketplace connectors

Free trial status: \$432.34 credit and 85 days remaining. Activate your full account to get unlimited access to all of Google Cloud—use any remaining credits, then pay only for what you use. Dismiss Activate

Google Cloud My First Project application integration Search

Application Integration / Overview / Integrations / Integration editor: redis-integration

← redis-integration Region: northamerica-northeast2 VERSION 1 TEST CASE PREVIEW TEST PUBLISH LEARN

Variables + CREATE TRIGGERS TASKS TEMPLATES PREVIEW New canvas view PREVIEW

Local Variables

- connectorInputPayload (redis-connector) 0

Auto Generated Local Variables

- CloudPubSubMessage (Cloud Pub/Sub Trigger) 1
- connectorOutputPayload (redis-connector) 1

System Variables

- ErrorInfo 0
- ExecutionId 0
- ExecutionMode 0
- IntegrationName 0
- ProjectId 0
- Region 0

Cloud Pub/Sub Trigger

General

Label: Cloud Pub/Sub Trigger

Notes

Trigger Input

Subscriptions to the Pub/Sub topics are billed as per the [Pub/Sub pricing](#).

Pub/Sub topic: projects/sodium-sublime-448820/topics/mage2Redis

Service account: pubsub-system

Trigger Output Variables

Error handling

Data Mapping (ID: 2)

redis-connector (ID: 1)

Google Cloud My First Project application integration Search

Application Integration / Overview / Integrations / Integration editor: redis-integration

← redis-integration Region: northamerica-northeast2 VERSION 1 TEST CASE PREVIEW TEST PUBLISH LEARN

Variables + CREATE TRIGGERS TASKS TEMPLATES PREVIEW New canvas view PREVIEW

Local Variables

- connectorInputPayload (redis-connector) 0

Auto Generated Local Variables

- CloudPubSubMessage (Cloud Pub/Sub Trigger) 1
- connectorOutputPayload (redis-connector) 1

System Variables

- ErrorInfo 0
- ExecutionId 0
- ExecutionMode 0
- IntegrationName 0
- ProjectId 0
- Region 0

Cloud Pub/Sub Trigger

General

Label: Cloud Pub/Sub Trigger

Notes

Trigger Input

Subscriptions to the Pub/Sub topics are billed as per the [Pub/Sub pricing](#).

Pub/Sub topic: projects/sodium-sublime-448820/topics/mage2Redis

Service account: pubsub-system

Trigger Output Variables

Error handling

Data Mapping (ID: 2)

redis-connector (ID: 1)

Integration execution succeeded.

Trigger

Cloud Pub/Sub Trigger

Trigger type

Cloud Pub/Sub Trigger

Trigger ID

cloud_pubsub_external_trigger/projects/sodium-sublime-448820-j1/subscriptions/sodium-sublime-448820-j1_image2Redis

Version

Version 1

Output Variables

Variable	Value
No rows to display	

[EDIT INPUT VARIABLES](#) [RETEST INTEGRATION](#) [VIEW LOGS](#)

The final integration passed successfully.


```

CLOUD SHELL
Terminal (sodium-sublime-448820-j1) x + -
Welcome to Cloud Shell! Type "help" to get started.
Your Cloud Platform project in this session is set to sodium-sublime-448820-j1.
Use 'gcloud config set project [PROJECT ID]' to change to a different project.
roharadadiya@cloudshell:~ (sodium-sublime-448820-j1)$ redis-cli -h <Redis-IP> -a sofe4630u
-bash: Redis-IP: No such file or directory
roharadadiya@cloudshell:~ (sodium-sublime-448820-j1)$ kubectl get services
NAME          TYPE          CLUSTER-IP      EXTERNAL-IP      PORT(S)          AGE
kubernetes    ClusterIP      34.118.224.1     <none>           443/TCP          21h
mysql-service  LoadBalancer  34.118.239.101   34.47.52.145     3306:30479/TCP   20h
redis          LoadBalancer  34.118.239.121   34.47.49.77      6379:32170/TCP   19h
roharadadiya@cloudshell:~ (sodium-sublime-448820-j1)$ redis-cli -h 34.47.49.77 -a sofe4630u
Warning: Using a password with '-a' or '-u' option on the command line interface may not be safe.
34.47.49.77:6379> select 0
OK
34.47.49.77:6379> get test
"1234"
34.47.49.77:6379> exit
roharadadiya@cloudshell:~ (sodium-sublime-448820-j1)$

```

Created secret 'redis-password' and added an initial version with the requested payload

```

PS C:\Users\rohan\Documents\CCMilestone2> python produceImage.py
Published messages with ordering keys to projects/sodium-sublime-448820-j1/topics/Image2Redis.
The messages has been published successfully
WARNING: All log messages before absl::InitializeLog() is called are written to STDERR
E0000 00:00:1738343152.217504 208804 init.cc:232] grpc_wait_for_shutdown_with_timeout() timed out.
PS C:\Users\rohan\Documents\CCMilestone2>

```

```

PS C:\Users\rohan\Documents\CCMilestone2> pip install redis
Defaulting to user installation because normal site-packages is not writeable
Requirement already satisfied: redis in c:\users\rohan\appdata\roaming\python\python312\site-packages (5.2.1)
PS C:\Users\rohan\Documents\CCMilestone2> python ReceiveImage.py
Error: Image key not found in Redis.
PS C:\Users\rohan\Documents\CCMilestone2> python produceImage.py
Published messages with ordering keys to projects/sodium-sublime-448820-j1/topics/Image2Redis.
The messages has been published successfully
WARNING: All log messages before absl::InitializeLog() is called are written to STDERR
E0000 00:00:1738348659.462800 11816 init.cc:232] grpc_wait_for_shutdown_with_timeout() timed out.
PS C:\Users\rohan\Documents\CCMilestone2> python ReceiveImage.py
Image received, check ./received.jpg
PS C:\Users\rohan\Documents\CCMilestone2>

```

produceImage.py and ReceiveImage.py files functioning as required.

Discussion:

1. What's the difference between Source and Sink connectors?

The main difference between a source connector and sink connector is that the source connector pulls data from external sources into the system, while the sink connector pushes data from the system to the external areas. For example, to ingest data from a MySQL database to put it somewhere else, you would use a source connector, whereas for a sink connector, you would use it to write the data from a topic to a SQL database.

2. What's the applications of the connectors?

Connectors have many applications, such as data ingestion, to export data, for application integrations, etc. There are numerous applications of connectors.

Design:

```
mysql> CREATE DATABASE DatasetDB;
Query OK, 1 row affected (0.04 sec)

mysql> USE DatasetDB;
Database changed
mysql> CREATE TABLE CsvRecords (
  ->   id INT AUTO_INCREMENT PRIMARY KEY,
  ->   label VARCHAR(255),
  ->   filename VARCHAR(255),
  ->   additional_info TEXT
  -> );
Query OK, 0 rows affected (0.05 sec)

mysql> 
```

New database and newly-created aspects:

The screenshot displays the Google Cloud Platform (GCP) interface. At the top, the navigation bar shows 'Google Cloud' and 'My First Project'. Below this, the 'Clusters' page is active, with tabs for 'VALKEY', 'REDIS CLUSTER', 'REDIS', and 'MEMCACHED'. The main content area shows a dashed outline of a cloud. On the right, a sidebar indicates 'No clusters selected' and has tabs for 'MONITORING' and 'CONNECTIVITY'. At the bottom, a 'CLOUD SHELL' terminal window is open, showing the same MySQL commands as the previous block. A notification at the bottom right states 'Created mysql-instance' at 1:57:31 PM GMT-5.

```

Once finished, enter the verification code provided in your browser:
ERROR: There was a problem with web authentication.
ERROR: (gcloud.auth.login) Please supply either code or authorization response parameters.
roharadadiya@cloudshell:~ (sodium-sublime-448820-j1)$ gcloud config set project sodium-sublime-448820-j1
Updated property [core/project].
roharadadiya@cloudshell:~ (sodium-sublime-448820-j1)$ gcloud sql connect mysql-instance --user=root --quiet
Allowlisting your IP for incoming connection for 5 minutes...done.
Connecting to database with SQL user [root].Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 40157
Server version: 8.0.37-google (Google)

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affiliates. Other names may be trademarks of their respective
owners.

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

mysql> CREATE DATABASE IF NOT EXISTS my_database;
Query OK, 1 row affected (0.05 sec)

mysql> USE my_database;
Database changed
mysql> CREATE TABLE IF NOT EXISTS labels_records (
  -> id INT AUTO INCREMENT PRIMARY KEY,
  -> Timestamp INT,
  -> Car1_Location_X FLOAT,
  -> Car1_Location_Y FLOAT,
  -> Car1_Location_Z FLOAT,
  -> Car2_Location_X FLOAT,
  -> Car2_Location_Y FLOAT,
  -> Car2_Location_Z FLOAT,
  -> pedestrianLocationX_TopLeft INT,
  -> pedestrianLocationY_TopLeft INT,
  -> pedestrianLocationX_BottomRight INT,
  -> pedestrianLocationY_BottomRight INT
  -> );
Query OK, 0 rows affected (0.06 sec)

mysql>

```

```

5 import csv
6 import time
7
8 # Search the current directory for the JSON file (including the service account key)
9 # to set the GOOGLE_APPLICATION_CREDENTIALS environment variable.
10 files = glob.glob("*.json")

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

[notice] A new release of pip is available: 24.2 -> 24.3.1
PS C:\Users\rohan\Documents\COHilestone2> python3 smartMeter.py
>>
Python was not found; run without arguments to install from the Microsoft Store, or disable this shortcut from Settings > Manage App Execution Aliases.
PS C:\Users\rohan\Documents\COHilestone2> python --version
Python 3.12.6
PS C:\Users\rohan\Documents\COHilestone2> python smartMeter.py
>>
Traceback (most recent call last):
  File "C:\Users\rohan\Documents\COHilestone2\smartMeter.py", line 5, in <module>
    import numpy as np          # pip install numpy      ##to install
    ~~~~~
ModuleNotFoundError: No module named 'numpy'
PS C:\Users\rohan\Documents\COHilestone2> python -m pip install numpy
Defaulting to user installation because normal site-packages is not writeable
Collecting numpy
  Downloading numpy-2.2.2-cp312-cp312-win_and64.whl.metadata (60 kB)
  Downloading numpy-2.2.2-cp312-cp312-win_and64.whl (12.6 MB)
    12.6/12.6 MB 5.4 MB/s eta 0:00:00
Installing collected packages: numpy
WARNING: The scripts f2py.exe and numpy-config.exe are installed in 'C:\Users\rohan\AppData\Roaming\Python\Python312\Scripts' which is not on PATH.
Consider adding this directory to PATH or, if you prefer to suppress this warning, use --no-warn-script-location.
Successfully installed numpy-2.2.2

[notice] A new release of pip is available: 24.2 -> 24.3.1
[notice] To update, run: python.exe -m pip install --upgrade pip
PS C:\Users\rohan\Documents\COHilestone2> python smartMeter.py
>>
Published messages with ordering keys to projects/sodium-sublime-448820-j1/topics/smartMeterReadings.
The message ID is: 2601325. The time is: 1738070897. The profile name is: 'Testmsg'. The message size is: 55. The message ID is: 2601325. The time is: 1738070897. The profile name is: 'Testmsg'. The message size is: 55. The message ID is: 2601325. The time is: 1738070897. The profile name is: 'Testmsg'. The message size is: 55.

```

```

The message {'ID': 2691360, 'time': 173828058, 'profile_name': 'boston', 'temperature': 67.9949894147468, 'humidity': 86.70803836703, 'pressure': 1.232330724945336} has been published successfully.
The message {'ID': 2691361, 'time': 173828058, 'profile_name': 'denver', 'temperature': 54.6256043995273, 'humidity': 37.56721358790892, 'pressure': 0.223923805831759} has been published successfully.
The message {'ID': 2691361, 'time': 173828058, 'profile_name': 'denver', 'temperature': 54.6256043995273, 'humidity': 37.56721358790892, 'pressure': 0.223923805831759} has been published successfully.
The message {'ID': 2691362, 'time': 173828059, 'profile_name': 'denver', 'temperature': 37.89802807267765, 'humidity': 36.825343297368894, 'pressure': 1.3674284585854383} has been published successfully.
The message {'ID': 2691363, 'time': 173828058, 'profile_name': 'losang', 'temperature': 66.85896681737297, 'humidity': 56.40861670326465, 'pressure': 0.845989665312646} has been published successfully.
The message {'ID': 2691364, 'time': 173828058, 'profile_name': 'boston', 'temperature': 57.78469616532468, 'humidity': 73.73549507044314, 'pressure': 0.9195028847286653} has been published successfully.
The message {'ID': 2691365, 'time': 1738280511, 'profile_name': 'losang', 'temperature': 73.18450492568459, 'humidity': 61.58849387582998, 'pressure': 1.3879502801420842} has been published successfully.
The message {'ID': 2691366, 'time': 1738280511, 'profile_name': 'denver', 'temperature': None, 'humidity': 59.87761619222765, 'pressure': 1.349785569924417} has been published successfully.
The message {'ID': 2691367, 'time': 1738280512, 'profile_name': 'losang', 'temperature': 81.33082385520837, 'humidity': 86.34862376276825, 'pressure': 1.1078128176807955} has been published successfully.
The message {'ID': 2691368, 'time': 1738280512, 'profile_name': 'denver', 'temperature': 9.37824657111779, 'humidity': 17.70850259073087, 'pressure': 0.9161740265977509} has been published successfully.
The message {'ID': 2691369, 'time': 1738280513, 'profile_name': 'losang', 'temperature': 68.88837015721825, 'humidity': 72.95166244848602, 'pressure': 1.526346970540842} has been published successfully.
The message {'ID': 2691370, 'time': 1738280513, 'profile_name': 'denver', 'temperature': None, 'humidity': 44.82581207242491, 'pressure': 1.553688025924695} has been published successfully.
The message {'ID': 2691371, 'time': 1738280514, 'profile_name': 'denver', 'temperature': 48.73785375274704, 'humidity': None, 'pressure': 1.8451894554861854} has been published successfully.
The message {'ID': 2691373, 'time': 1738280515, 'profile_name': 'losang', 'temperature': 46.487326889039335, 'humidity': None, 'pressure': None} has been published successfully.
The message {'ID': 2691374, 'time': 1738280516, 'profile_name': 'losang', 'temperature': 68.97703831930991, 'humidity': 20.041529339886637, 'pressure': 1.2865393697700538} has been published successfully.
The message {'ID': 2691375, 'time': 1738280516, 'profile_name': 'losang', 'temperature': 56.29967249868481, 'humidity': 94.6416922362393, 'pressure': 1.3119795842599293} has been published successfully.
The message {'ID': 2691376, 'time': 1738280517, 'profile_name': 'boston', 'temperature': 70.6590288996557, 'humidity': None, 'pressure': 1.1084187774318286} has been published successfully.
The message {'ID': 2691377, 'time': 1738280518, 'profile_name': 'boston', 'temperature': 30.74296357287418, 'humidity': 83.69451472404783, 'pressure': 1.081126396460924} has been published successfully.
The message {'ID': 2691378, 'time': 1738280518, 'profile_name': 'losang', 'temperature': 49.30572483963809, 'humidity': 78.5783321070423, 'pressure': 1.44426688756736} has been published successfully.
The message {'ID': 2691380, 'time': 1738280519, 'profile_name': 'denver', 'temperature': None, 'humidity': 0, 'pressure': 1.671031840598907} has been published successfully.
The message {'ID': 2691381, 'time': 1738280520, 'profile_name': 'losang', 'temperature': 64.51624865933289, 'humidity': 45.744579693538725, 'pressure': 1.143988868224532} has been published successfully.
The message {'ID': 2691382, 'time': 1738280520, 'profile_name': 'boston', 'temperature': 77.67674846553517, 'humidity': 77.17066991811532, 'pressure': 0.9220137460815287} has been published successfully.
Traceback (most recent call last):
File "C:\Users\rohan\Documents\COMilestone2\smartMeter.py", line 67, in <module>
    time.sleep(0.5)

```

```

(venv) PS C:\Users\rohan\Documents\COMilestone2> python mysql_subscriber.py
Listening for messages on projects/sodium-sublime-448820-j1/subscriptions/csvRecordsSQL-subscription...
Received message: b'{"Timestamp": 1736796064, "Car1_Location_X": -53.42145716, "Car1_Location_Y": 143.0, "Car1_Location_Z": 0.596902, "Car2_Location_X": -59.60890856, "Car2_Location_Y": 140.0, "Car2_Location_X_TopLeft": 587, "pedestrianLocationX_TopLeft": 414}'
Inserted record: {"Timestamp": 1736796064, "Car1_Location_X": -53.42145716, "Car1_Location_Y": 143.0, "Car1_Location_Z": 0.596902, "Car2_Location_X": -59.60890856, "Car2_Location_Y": 140.0, "Car2_Location_X_TopLeft": 587, "pedestrianLocationX_TopLeft": 414}
Received message: b'{"Timestamp": 1736796281, "Car1_Location_X": -53.01906414, "Car1_Location_Y": 143.0, "Car1_Location_Z": 0.596902, "Car2_Location_X": -57.68918188, "Car2_Location_Y": 140.0, "Car2_Location_X_TopLeft": 639, "pedestrianLocationX_TopLeft": 417}'
Received message: b'{"Timestamp": 1736796563, "Car1_Location_X": -52.30411335, "Car1_Location_Y": 143.0, "Car1_Location_Z": 0.596902, "Car2_Location_X": -57.53750689, "Car2_Location_Y": 140.0, "Car2_Location_X_TopLeft": 619, "pedestrianLocationX_TopLeft": 424}'
Error processing message: 2013 (HW080): Lost connection to MySQL server during query
Received message: b'{"Timestamp": 1736796685, "Car1_Location_X": -53.99290223, "Car1_Location_Y": 143.0, "Car1_Location_Z": 0.596902, "Car2_Location_X": -59.23319363, "Car2_Location_Y": 140.0, "Car2_Location_X_TopLeft": 545, "pedestrianLocationX_TopLeft": 410}'
Error processing message: 2013 (HW080): Lost connection to MySQL server during query
Received message: b'{"Timestamp": 1736796881, "Car1_Location_X": -50.54685678, "Car1_Location_Y": 143.0, "Car1_Location_Z": 0.596902, "Car2_Location_X": -56.01859887, "Car2_Location_Y": 140.0, "Car2_Location_X_TopLeft": 621, "pedestrianLocationX_TopLeft": 435}'
Received message: b'{"Timestamp": 1736796771, "Car1_Location_X": -51.26407461, "Car1_Location_Y": 143.0, "Car1_Location_Z": 0.596902, "Car2_Location_X": -57.0008889, "Car2_Location_Y": 140.0, "Car2_Location_X_TopLeft": 590, "pedestrianLocationX_TopLeft": 422}'
Error processing message: 2013 (HW080): Lost connection to MySQL server during query
Received message: b'{"Timestamp": 1736796990, "Car1_Location_X": -50.58205855, "Car1_Location_Y": 143.0, "Car1_Location_Z": 0.596902, "Car2_Location_X": -56.65705337, "Car2_Location_Y": 140.0, "Car2_Location_X_TopLeft": 649, "pedestrianLocationX_TopLeft": 429}'
Error processing message: 2013 (HW080): Lost connection to MySQL server during query
Error processing message: 2013 (HW080): Lost connection to MySQL server during query

```

```

LocationX_TopLeft": 370, "pedestrianLocationX_TopLeft": 430}
Error processing message: 2013 (HW080): Lost connection to MySQL server during query
(venv) PS C:\Users\rohan\Documents\COMilestone2> python csv_producer.py
Publishing messages to projects/sodium-sublime-448820-j1/topics/csvRecordsSQL...
[1] Published successfully: {"Timestamp": 1736796157, "Car1_Location_X": -51.40207655, "Car1_Location_Y": 143.0, "Car1_Location_Z": 0.596902, "Car2_Location_X": -59.32026969, "Car2_Location_Y": 140.0, "Car2_Location_Z": 0.596902, "Occluded_Image_View": "A_001.png", "Occluding_Car_View": "B_001.png", "Ground_Truth_View": "C_001.png", "pedestrianLocationX_TopLeft": 593, "pedestrianLocationY_TopLeft": 361, "pedestrianLocationX_BottomRight": 610, "pedestrianLocationY_BottomRight": 410}
[2] Published successfully: {"Timestamp": 1736796167, "Car1_Location_X": -53.81963722, "Car1_Location_Y": 143.0, "Car1_Location_Z": 0.596902, "Car2_Location_X": -59.19658115, "Car2_Location_Y": 140.0, "Car2_Location_Z": 0.596902, "Occluded_Image_View": "A_002.png", "Occluding_Car_View": "B_002.png", "Ground_Truth_View": "C_002.png", "pedestrianLocationX_TopLeft": 579, "pedestrianLocationY_TopLeft": 368, "pedestrianLocationX_BottomRight": 594, "pedestrianLocationY_BottomRight": 415}
[3] Published successfully: {"Timestamp": 1736796178, "Car1_Location_X": -50.23914439, "Car1_Location_Y": 143.0, "Car1_Location_Z": 0.596902, "Car2_Location_X": -56.74447887, "Car2_Location_Y": 140.0, "Car2_Location_Z": 0.596902, "Occluded_Image_View": "A_003.png", "Occluding_Car_View": "B_003.png", "Ground_Truth_View": "C_003.png", "pedestrianLocationX_TopLeft": 854, "pedestrianLocationY_TopLeft": 720, "pedestrianLocationX_BottomRight": 854, "pedestrianLocationY_BottomRight": 720}
[4] Published successfully: {"Timestamp": 1736796189, "Car1_Location_X": -53.70722021, "Car1_Location_Y": 143.0, "Car1_Location_Z": 0.596902, "Car2_Location_X": -57.30938047, "Car2_Location_Y": 140.0, "Car2_Location_Z": 0.596902, "Occluded_Image_View": "A_004.png", "Occluding_Car_View": "B_004.png", "Ground_Truth_View": "C_004.png", "pedestrianLocationX_TopLeft": 549, "pedestrianLocationY_TopLeft": 368, "pedestrianLocationX_BottomRight": 567, "pedestrianLocationY_BottomRight": 425}
[5] Published successfully: {"Timestamp": 1736796198, "Car1_Location_X": -52.05372109, "Car1_Location_Y": 143.0, "Car1_Location_Z": 0.596902, "Car2_Location_X": -59.54589734, "Car2_Location_Y": 140.0, "Car2_Location_Z": 0.596902, "Occluded_Image_View": "A_005.png", "Occluding_Car_View": "B_005.png", "Ground_Truth_View": "C_005.png", "pedestrianLocationX_TopLeft": 524, "pedestrianLocationY_TopLeft": 368, "pedestrianLocationX_BottomRight": 537, "pedestrianLocationY_BottomRight": 413}
[6] Published successfully: {"Timestamp": 1736796209, "Car1_Location_X": -53.93975603, "Car1_Location_Y": 143.0, "Car1_Location_Z": 0.596902, "Car2_Location_X": -55.77204855, "Car2_Location_Y": 140.0, "Car2_Location_Z": 0.596902, "Occluded_Image_View": "A_006.png", "Occluding_Car_View": "B_006.png", "Ground_Truth_View": "C_006.png", "pedestrianLocationX_TopLeft": 576, "pedestrianLocationY_TopLeft": 371, "pedestrianLocationX_BottomRight": 596, "pedestrianLocationY_BottomRight": 430}
[7] Published successfully: {"Timestamp": 1736796219, "Car1_Location_X": -50.30258412, "Car1_Location_Y": 143.0, "Car1_Location_Z": 0.596902, "Car2_Location_X": -54.76172465, "Car2_Location_Y": 140.0, "Car2_Location_Z": 0.596902, "Occluded_Image_View": "A_007.png", "Occluding_Car_View": "B_007.png", "Ground_Truth_View": "C_007.png", "pedestrianLocationX_TopLeft": 625, "pedestrianLocationY_TopLeft": 373, "pedestrianLocationX_BottomRight": 644, "pedestrianLocationY_BottomRight": 450}
[8] Published successfully: {"Timestamp": 1736796229, "Car1_Location_X": -53.17447194, "Car1_Location_Y": 143.0, "Car1_Location_Z": 0.596902, "Car2_Location_X": -54.03136206, "Car2_Location_Y": 140.0, "Car2_Location_Z": 0.596902, "Occluded_Image_View": "A_008.png", "Occluding_Car_View": "B_008.png", "Ground_Truth_View": "C_008.png", "pedestrianLocationX_TopLeft": 700, "pedestrianLocationY_TopLeft": 373, "pedestrianLocationX_BottomRight": 727, "pedestrianLocationY_BottomRight": 459}
[9] Published successfully: {"Timestamp": 1736796240, "Car1_Location_X": -52.72667437, "Car1_Location_Y": 143.0, "Car1_Location_Z": 0.596902, "Car2_Location_X": -58.77132264, "Car2_Location_Y": 140.0, "Car2_Location_Z": 0.596902, "Occluded_Image_View": "A_009.png", "Occluding_Car_View": "B_009.png", "Ground_Truth_View": "C_009.png", "pedestrianLocationX_TopLeft": 533, "pedestrianLocationY_TopLeft": 369, "pedestrianLocationX_BottomRight": 550, "pedestrianLocationY_BottomRight": 422}

```

Clearly, the steps in the design section of the milestone are completed and the functionality is working as expected.