

Nicholas Marogi

Final Project

- Create a VM (specs can be similar to assignment) /gcloud (20%)

Name *

csi-4160-finalproject-vm

Labels ?

+ ADD LABELS

Region *

us-central1 (Iowa)

Zone *

us-central1-c

Region is permanent

Zone is permanent

Machine configuration

General purpose

Compute optimized

Memory optimized

GPUs

Machine types for common workloads, optimized for cost and flexibility

Try the new C3 machine series. There's no charge for C3 VMs during public preview.

Series

E2

CPU platform selection based on availability

Machine type

Choose a machine type with preset amounts of vCPUs and memory that suit most workloads. Or, you can create a custom machine for your workload's particular needs. [Learn more](#)

PRESET

CUSTOM

Creating a custom machine incurs additional costs

Cores

2

32

2 vCPU

☐ Shared core

Memory

1

16

8 GB

ADVANCED CONFIGURATIONS

Display device

Enable to use screen capturing and recording tools.

☐ Enable display device

Identity and API access ?

Service accounts ?

Service account

Compute Engine default service account

Requires the Service Account User role (roles/iam.serviceAccountUser) to be set for users who want to access VMs with this service account. [Learn more](#)

Access scopes ?

☒ Allow default access

☐ Allow full access to all Cloud APIs

☐ Set access for each API

Firewall ?

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

☒ Allow HTTP traffic

☒ Allow HTTPS traffic

Advanced options

Networking, disks, security, management, sole-tenancy

Filter

Enter property name or value

<input type="checkbox"/>	Status	Name ↑	Zone	Connect
<input type="checkbox"/>	✓	csi-4160-finalproject-vm	us-central1-c	SSH ▾ ⋮

- Initiate VM (see sample below) / gcloud (15%)

<input type="checkbox"/>	Status	Name ↑	Zone	Connect
<input type="checkbox"/>	✓	csi-4160-finalproject-vm	us-central1-c	SSH ▾ ⋮

```
#gcloud.sh is a tool to start/stop a VM under the 'My First Project' in
GCP
#args [start|stop]
#run by issuing,
#sh gcloud.sh start
gcloud compute instances $1 --zone "csi-4160finalproject-vm-us-central1-c"
"VM" --project "My First Project"
```

- Create and attach new HDD to your VM / gcloud (20%)

✓
Name your bucket

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

Tip: Don't include any sensitive information

Labels (optional)
Labels are key:value pairs that allow you to group related buckets together or with other Cloud Platform resources. [Learn more](#)

+ ADD LABEL

^ SHOW LESS

CONTINUE

✓
Choose where to store your data

This choice defines the geographic placement of your data and affects cost, performance, and availability. Cannot be changed later. [Learn more](#)

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

✓ Choose a storage class for your data

A storage class sets costs for storage, retrieval, and operations, with minimal differences in uptime. Choose if you want objects to be managed automatically or specify a default storage class based on how long you plan to store your data and your workload or use case. [Learn more](#)

- ☐ Autoclass
Automatically transitions each object to hotter or colder storage based on object-level activity, to optimize for cost and latency. Recommended if usage frequency may be unpredictable. Can be changed to a default class at any time. [Pricing details](#)
- ☒ Set a default class
Applies to all objects in your bucket unless you manually modify the class per object or set object lifecycle rules. Best when your usage is highly predictable. Can't be changed to Autoclass once the bucket is created.
- ☒ 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

Prevent public access

Restrict data from being publicly accessible via the internet. Will prevent this bucket from being used for web hosting. [Learn more](#)

☐ Enforce public access prevention on this bucket

Filter Filter buckets

<input type="checkbox"/>	Name ↑	Created
<input type="checkbox"/>	csi4160finalprojectmarogi	Apr 16, 2023, 10:56:40 AM

← Create a disk

Name *
disk-finalproject-marogi

Name is permanent

Description
disk for final project

Location

- ☒ Single zone
- ☐ Regional
Create a failover replica in the same region for high availability. Storage and data replication is provided between both zones. [Learn more](#)

Region *
us-central1 (Iowa)

Zone *
us-central1-a

Source

Create a blank disk, apply a bootable disk image, or restore a snapshot of another disk in this project.

Disk source type *
Blank disk

Disk settings

Disk type *
Standard persistent disk

COMPARE DISK TYPES

Additional disks

+ ADD NEW DISK

+ ATTACH EXISTING DISK

Local disks

None

Existing disk ✕

Disk *
disk-finalproject-marogi

Attachment settings

Mode

Disk attachment mode

- ☒ Read/write
☐ Read-only

Deletion rule

When deleting instance

- ☒ Keep disk
☐ Delete disk

Device name

Used to reference the device for mounting or resizing.

☐ Use a custom device name

Device name
disk-finalproject-marogi

Based on disk name (default)

SAVE

CANCEL

Additional disks

Existing disk disk-finalproject-marogi, regional  

+ ADD NEW DISK

+ ATTACH EXISTING DISK

Local disks

None

- Create a Cloud SQL / database / Table (20%)

Create a PostgreSQL instance

Instance info

Instance ID *
csi4160-finalproject-marogi

Use lowercase letters, numbers, and hyphens. Start with a letter.

Password *
.....  GENERATE

Set a password for the default admin user "postgres". [Learn more](#)

PASSWORD POLICY

Database version *
PostgreSQL 14

Choose a configuration to start with

These suggested configurations will pre-fill this form as a starting point for creating an instance. You can customize as needed later.

 You've made changes that override the selected configuration. [RESET](#)

- ☒ **Production**
Optimized for the most critical workloads. Highly available, performant, and durable.
- ☐ **Development**
Performant but not highly available, while reducing cost by provisioning less compute and storage.

CONFIGURATION DETAILS

All instances > csi4160-finalproject-marogi
csi4160-finalproject-marogi

PostgreSQL 14



Create a database

Database Name *
csi4160-finalproject-sensehatdata-marogi

Must follow the PostgreSQL identifier rules. [Learn more](#)

CREATE CANCEL

```
Welcome to Cloud Shell! Type "help" to get started.
Your Cloud Platform project in this session is set to wired-episode-380823.
Use "gcloud config set project (PROJECT_ID)" to change to a different project.
csi4160-nlmarogi@cloudshell:~ (wired-episode-380823) $ gcloud sql connect csi4160-finalproject-marogi --user=postgres --quiet
Allowlisting your IP for incoming connection for 5 minutes...done.
Connecting to database with SQL user (postgres):Password:
psql (15.2 (Debian 15.2-1.pgdgl10+1), server 14.5)
SSL connection (protocol: TLSv1.3, cipher: TLS_AES_256_GCM_SHA384, compression: off)
Type "help" for help.

postgres->
postgres-> \l\y&t99
postgres-> \list

```

Name	Owner	Encoding	Collate	Ctype	ICU Locale	Locale Provider	Access privileges
cloudsqladmin	cloudsqladmin	UTF8	en_US.UTF8	en_US.UTF8		libc	
csi4160-finalproject-sensehatdata-marogi	cloudsqlsuperuser	UTF8	en_US.UTF8	en_US.UTF8		libc	
postgres	cloudsqlsuperuser	UTF8	en_US.UTF8	en_US.UTF8		libc	
template0	cloudsqladmin	UTF8	en_US.UTF8	en_US.UTF8		libc	=c/cloudsqladmin
template1	cloudsqlsuperuser	UTF8	en_US.UTF8	en_US.UTF8		libc	=c/cloudsqlsuperuser

```
postgres-> \c csi4160-finalproject-sensehatdata-marogi
Password:
psql (15.2 (Debian 15.2-1.pgdgl10+1), server 14.5)
SSL connection (protocol: TLSv1.3, cipher: TLS_AES_256_GCM_SHA384, compression: off)
You are now connected to database "csi4160-finalproject-sensehatdata-marogi" as user "postgres".
csi4160-finalproject-sensehatdata-marogi->
```

```
csi4160-finalproject-sensehatdata-marogi=> create table sensehat(
id int primary key not null,
timesent varchar(55),
transmissiontype varchar(45),
temperature varchar(30)
);
CREATE TABLE
csi4160-finalproject-sensehatdata-marogi=> \d

```

Schema	Name	Type	Owner
public	sensehat	table	postgres

(1 row)

```
csi4160-finalproject-sensehatdata-marogi=>
```

- IoT device

The screenshot displays the Node-RED web interface in a Chromium browser. The main workspace shows a flow with the following components: a 'Sense HAT' input node, a 'limit 1 msg/5s' rate limiter, a 'data' node, a 'function 2' node, a 'csv' node, and a 'home/marogi/Desktop/data - Sheet1.csv' output node. The flow is connected to a 'debug-CSI-14160' node. The left sidebar shows the 'storage' category with nodes like 'write file', 'read file', and 'watch'. The right sidebar shows the 'config' tab with a list of flows.

Below the Node-RED interface, the Google Cloud console is visible, showing the 'Bucket details' for 'csi4160finalprojectmarogi'. The 'OBJECTS' tab is selected, showing a list of objects with columns for Name, Size, Type, Created, Storage class, Last modified, Public access, and Version history. The objects listed are 'data - Sheet1.csv' and 'datafile/'. The 'data - Sheet1.csv' object is highlighted.

At the bottom, the Google Cloud console shows the 'Import data from Cloud Storage' wizard. The 'Source' section is filled with 'csi4160finalprojectmarogi/data - Sheet1.csv'. The 'File format' is set to 'CSV'. The 'Destination' section is filled with 'Database * csi4160-finalproject-sensehatdata-marogi' and 'Table * csi4160-finalproject-sensehatdata-marogi'. The 'IMPORT' button is visible at the bottom.

- [Github](https://github.com/nlmarogi/CSI-4160-Final-Marogi.git)

<https://github.com/nlmarogi/CSI-4160-Final-Marogi.git>