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Course: DS 561

Homework 10

Setup

- gcloud services enable deploymentmanager.googleapis.com compute.googleapis.com storage.googleapis.com sqladmin.googleapis.com pubsub.googleapis.com
- The professor stated that using a "third-party" bucket outside of the deployment was acceptable. I decided to use the hw2 bucket and add my web-server.py and pubsub-listener.py code into it

Code

deployment.yaml

```yaml
# Service Account for Web Server
- name: webserver-service-account
  type: iam.v1.serviceAccount
  properties:
    accountId: webserver-sa
    displayName: Web Server Service Account

# Bind roles to the Web Server Service Account
- name: webserver-sa-storage-admin-binding
  type: gcp-types/storage-v1:virtual.buckets.iamMemberBinding
  properties:
    bucket: jeremybui_hw10
    role: roles/storage.objectAdmin
    member: serviceAccount:$(ref.webserver-service-account.email)

- name: webserver-sa-cloudsql-client-binding
  type: gcp-types/cloudresourcemanager-v1:virtual.projects.iamMemberBinding
  properties:
    resource: $(projectId)
    role: roles/cloudsql.client
    member: serviceAccount:$(ref.webserver-service-account.email)

# Service Account for Listener VM
- name: listener-service-account
  type: iam.v1.serviceAccount
  properties:
    accountId: listener-sa
    displayName: Listener Service Account

# Bind roles to the Listener Service Account
- name: listener-sa-storage-admin-binding
  type: gcp-types/storage-v1:virtual.buckets.iamMemberBinding
  properties:
    bucket: jeremybui_hw10
```

```yaml
    role: roles/storage.objectViewer
    member: serviceAccount:$(ref.listener-service-account.email)

- name: listener-sa-pubsub-subscriber-binding
  type: gcp-types/pubsub-v1:projects.subscriptions.iamMemberBinding
  properties:
    subscription: banned-country-subscription
    role: roles/pubsub.subscriber
    member: serviceAccount:$(ref.listener-service-account.email)

# Firewall rule to allow HTTP and HTTPS
- name: allow-http-https
  type: compute.v1.firewall
  properties:
    network: global/networks/default
    allowed:
      - IPProtocol: TCP
        ports:
          - "80"
          - "443"
    direction: INGRESS
    sourceRanges:
      - 0.0.0.0/0
    targetTags:
      - http-server
      - https-server

# Cloud SQL Instance
- name: sql-instance
  type: sqladmin.v1beta4.instance
  properties:
    name: hw10-sql-instance
    region: us-central1
    databaseVersion: MYSQL_5_7
    settings:
      tier: db-f1-micro
      backupConfiguration:
        enabled: true
        startTime: "23:00"
      ipConfiguration:
        ipv4Enabled: true
        authorizedNetworks:
          - value: "0.0.0.0/0"
      userLabels:
        environment: production
    instanceType: CLOUD_SQL_INSTANCE
    rootPassword: ""

# SQL Database
```

```yaml
- name: hw10-database
  type: sqladmin.v1beta4.database
  metadata:
    dependsOn:
      - sql-instance
  properties:
    name: hw10-database
    instance: $(ref.sql-instance.name)

# GCS Bucket for HW10
- name: jeremybui_hw10
  type: storage.v1.bucket
  properties:
    location: US
    storageClass: STANDARD
    iamConfiguration:
      bucketPolicyOnly:
        enabled: true

# Copy Files to New Bucket
- name: copy-files-to-hw10
  action: gcp-types/storage-v1:storage.objects.copy
  metadata:
    dependsOn:
      - jeremybui_hw10
  properties:
    sourceBucket: jeremybui_ps2
    sourceObject: files/
    destinationBucket: jeremybui_hw10
    destinationObject: files/

# Pub/Sub Topic
- name: banned-country-topic
  type: pubsub.v1.topic
  properties:
    topic: banned-country-topic

# Pub/Sub Subscription
- name: banned-country-subscription
  type: pubsub.v1.subscription
  metadata:
    dependsOn:
      - banned-country-topic
  properties:
    subscription: banned-country-subscription
    topic: $(ref.banned-country-topic.name)
    ackDeadlineSeconds: 20

# Web Server VM
```

```yaml
- name: webserver-vm
  type: compute.v1.instance
  metadata:
    dependsOn:
      - sql-instance
      - hw10-database
  properties:
    zone: us-central1-a
    machineType: zones/us-central1-a/machineTypes/f1-micro
    tags:
      items:
        - http-server
        - https-server
    serviceAccounts:
      - email: $(ref.webserver-service-account.email)
        scopes:
          - https://www.googleapis.com/auth/cloud-platform
    disks:
      - boot: true
        autoDelete: true
        initializeParams:
          sourceImage: projects/debian-cloud/global/images/family/debian-11
    networkInterfaces:
      - network: global/networks/default
        accessConfigs:
          - name: External NAT
            type: ONE_TO_ONE_NAT
    metadata:
      items:
        - key: enable-oslogin
          value: "TRUE"
        - key: startup-script
          value: |
            #!/bin/bash
            sudo apt-get update && sudo apt-get install -y python3 python3-pip
google-cloud-sdk
            sudo pip3 install google-cloud-storage google-cloud-logging google-cloud-pubsub
mysql-connector-python

            VM_IP=$(curl -s
http://metadata.google.internal/computeMetadata/v1/instance/network-interfaces/0/access-config
s/0/external-ip -H "Metadata-Flavor: Google")

            gcloud sql instances patch hw10-sql-instance --authorized-networks=${VM_IP}/32

            gsutil -m cp -r gs://jeremybui_ps2/files/* gs://jeremybui_hw10/files/

            gsutil -m cp gs://jeremybui_ps2/web-server.py ~/web-server.py
```

```
            sudo python3 ~/web-server.py $(gcloud sql instances describe hw10-sql-instance
--format="get(ipAddresses[0].ipAddress)") hw10-db banned-country-topic &

# Listener VM for Pub/Sub
- name: listener-vm
  type: compute.v1.instance
  metadata:
    dependsOn:
      - banned-country-subscription
  properties:
    zone: us-central1-a
    machineType: zones/us-central1-a/machineTypes/f1-micro
    tags:
      items:
        - http-server
        - https-server
    serviceAccounts:
      - email: $(ref.listener-service-account.email)
        scopes:
          - https://www.googleapis.com/auth/cloud-platform
    disks:
      - boot: true
        autoDelete: true
        initializeParams:
          sourceImage: projects/debian-cloud/global/images/family/debian-11
    networkInterfaces:
      - network: global/networks/default
        accessConfigs:
          - name: External NAT
            type: ONE_TO_ONE_NAT
    metadata:
      items:
        - key: enable-oslogin
          value: "TRUE"
        - key: startup-script
          value: |
            #!/bin/bash
            sudo apt-get update && sudo apt-get install -y python3 python3-pip
google-cloud-sdk
            sudo pip3 install google-cloud-storage google-cloud-logging google-cloud-pubsub

            gsutil -m cp gs://jeremybui_ps2/pubsub-listener.py ~/pubsub-listener.py

            sudo python3 ~/pubsub-listener.py banned-country-subscription
```

- Create service account for webserver-vm named webserver-sa to allow for permissions to interact with buckets, sql, etc
- Create listener-sa for listener-vm to have access to buckets and pub/sub

- Grant the roles/storage.objectAdmin to webserver-sa so that it can move files from bucket jeremybui_ps2 to bucket jeremybui_hw10
- Grant cloudsql.client to webserver-sa so that it can add requests to the SQL instance
- Grant storage.objectViewer to listener-sa pull its pubsub-listener file from the bucket
- Grant pubsub.subcriber to listener-sa so that it can read the messages from the topic
- Allow firewall rules of port 80 for HTTP requests
- Create a cloud SQL instance of hw10-sql-instance, we want to specify the names with version, backup, and tier (db-f1-micro)
- Create the jeremybui_h10 bucket and copy the files from jeremybui_ps2
- Create a pubsub topic named banned-country-topic and subscription named banned-country-subscription so that we can publish from web server to subscription
- Create a web server vm with the minimum settings and allow for HTTP traffic, we also want to attach the webserver-sa to this
  - For its startup script, we want to install dependencies
  - Add the VM's IP to SQL's allowed lists
  - Copy all the files from from jeremybui_ps2 to the current bucket
  - Run the web-server.py with the IP of SQL and pub/sub fields (as everything is created dynamically)
- Create listener vm with minimum settings and bind listener-sa to it for permissions
  - Install the needed dependencies from the past assignments
  - Copy over the listener script from jeremybui_ps2
  - Run the subscription with the name of the pub/sub
- Also add depends on throughout to make sure everything is ran in the intended chronological order as there are dependencies

web-server.py

```python
from http.server import BaseHTTPRequestHandler, HTTPServer
from socketserver import ThreadingMixIn
from google.cloud import storage, logging_v2 as cloudLogging, pubsub_v1
import json
import mysql.connector
import logging
import sys


cloudLoggingClient = cloudLogging.Client()
cloudLogger = cloudLoggingClient.logger("httpServerLog")
logging.basicConfig(level=logging.INFO)


bannedCountries = ['North Korea', 'Iran', 'Cuba', 'Myanmar', 'Iraq', 'Libya', 'Sudan',
'Zimbabwe', 'Syria']
projectId = 'ds561-bucs'


DB_USER = "root"
DB_PASSWORD = ""


def set_db_credentials(db_host, db_name, pubsub_topic):
```

```python
    """Sets the database and Pub/Sub topic dynamically."""
    global DB_HOST, DB_NAME, TOPIC_ID
    DB_HOST = db_host
    DB_NAME = db_name
    TOPIC_ID = pubsub_topic

def notifyTrackerApp(country):
    """Publishes a message to Pub/Sub for banned countries."""
    publisher = pubsub_v1.PublisherClient()
    topicPath = publisher.topic_path(projectId, TOPIC_ID)
    messageData = json.dumps({'country': country}).encode('utf-8')
    publisher.publish(topicPath, messageData)
    logging.info(f"Published banned country notification for {country} to Pub/Sub.")

def fetchFileFromBucket(bucketPath):
    """Fetches a file from the GCS bucket."""
    bucketName, filePath = bucketPath.split("/", 1)
    bucket = storage.Client().get_bucket(bucketName)
    blob = bucket.blob(filePath)
    if blob.exists():
        logging.info(f"Fetched file {filePath} from bucket {bucketName}.")
        return blob.download_as_text()
    logging.warning(f"File {filePath} does not exist in bucket {bucketName}.")
    return None

def create_schema_if_not_exists():
    """Creates or verifies the database schema."""
    try:
        conn = mysql.connector.connect(
            host=DB_HOST,
            user=DB_USER,
            password=DB_PASSWORD
        )
        cursor = conn.cursor()

        cursor.execute(f"CREATE DATABASE IF NOT EXISTS `{DB_NAME}`")
        conn.database = DB_NAME

        cursor.execute("""
        CREATE TABLE IF NOT EXISTS requests (
            id INT AUTO_INCREMENT PRIMARY KEY,
            country VARCHAR(255) NOT NULL,
            client_ip VARCHAR(255) NOT NULL,
            gender VARCHAR(255) DEFAULT 'unknown',
            age VARCHAR(10) DEFAULT NULL,
            income VARCHAR(255) DEFAULT NULL,
            is_banned BOOLEAN NOT NULL,
            time_of_day VARCHAR(255) DEFAULT NULL,
            requested_file VARCHAR(255) NOT NULL
```

```python
            );
        """)

        cursor.execute("""
        CREATE TABLE IF NOT EXISTS failed_requests (
            id INT AUTO_INCREMENT PRIMARY KEY,
            time_req TIMESTAMP DEFAULT CURRENT_TIMESTAMP,
            req_file VARCHAR(255) NOT NULL,
            err_code INT NOT NULL
        );
        """)

        conn.commit()
        logging.info("Database schema creation and verification completed.")
    except mysql.connector.Error as err:
        logging.error(f"Error creating schema: {err}")
    finally:
        cursor.close()
        conn.close()

def log_request_to_db(country, client_ip, gender, age, income, is_banned, time_of_day,
requested_file):
    """Logs a successful request to the database."""
    try:
        conn = mysql.connector.connect(host=DB_HOST, user=DB_USER, password=DB_PASSWORD,
database=DB_NAME)
        cursor = conn.cursor()
        cursor.execute("""
            INSERT INTO requests (country, client_ip, gender, age, income, is_banned,
time_of_day, requested_file)
            VALUES (%s, %s, %s, %s, %s, %s, %s, %s)
        """, (country, client_ip, gender, age, income, is_banned, time_of_day,
requested_file))
        conn.commit()
        logging.info("Request logged successfully.")
    except mysql.connector.Error as err:
        logging.error(f"Error logging request: {err}")
    finally:
        cursor.close()
        conn.close()

def log_error_to_db(requested_file, error_code):
    """Logs a failed request to the database."""
    try:
        conn = mysql.connector.connect(host=DB_HOST, user=DB_USER, password=DB_PASSWORD,
database=DB_NAME)
        cursor = conn.cursor()
        cursor.execute("""
            INSERT INTO failed_requests (req_file, err_code)
```

```python
                VALUES (%s, %s)
        """, (requested_file, error_code))
        conn.commit()
        logging.info("Error logged successfully.")
    except mysql.connector.Error as err:
        logging.error(f"Error logging error: {err}")
    finally:
        cursor.close()
        conn.close()

class RequestHandler(BaseHTTPRequestHandler):
    def log_message(self, format, *args):
        pass

    def do_GET(self):
        """Handles GET requests."""
        country = self.headers.get('X-Country', 'unknown')
        client_ip = self.headers.get('X-client-IP', 'unknown')
        gender = self.headers.get('X-gender', 'unknown')
        age = self.headers.get('X-age', 'unknown')
        income = self.headers.get('X-income', 'unknown')
        time_of_day = self.headers.get('X-time', 'unknown')

        is_banned = country in bannedCountries
        if is_banned:
            cloudLogger.log_text(f"Access denied from banned country: {country}",
severity="ERROR")
            notifyTrackerApp(country)
            self.send_response(400)
            self.end_headers()
            self.wfile.write(b"Access denied: Request from banned country")
            log_request_to_db(country, client_ip, gender, age, income, True, time_of_day,
self.path)
            log_error_to_db(self.path, 400)
            return

        try:
            fileContent = fetchFileFromBucket(self.path.strip("/"))
            if fileContent is None:
                cloudLogger.log_text(f"File {self.path} not found", severity="ERROR")
                self.send_response(404)
                self.end_headers()
                self.wfile.write(b"File not found")
                log_request_to_db(country, client_ip, gender, age, income, False, time_of_day,
self.path)
                log_error_to_db(self.path, 404)
            else:
                self.send_response(200)
                self.end_headers()
```

```python
                self.wfile.write(fileContent.encode("utf-8"))
                log_request_to_db(country, client_ip, gender, age, income, False, time_of_day,
self.path)
        except Exception as e:
            cloudLogger.log_text(f"Error occurred: {e}", severity="ERROR")
            self.send_response(500)
            self.end_headers()
            log_request_to_db(country, client_ip, gender, age, income, False, time_of_day,
self.path)
            log_error_to_db(self.path, 500)

    def handle_unsupported_methods(self):
        """Handles unsupported HTTP methods."""
        cloudLogger.log_text(f"Unsupported method {self.command} was used for {self.path}",
severity="ERROR")
        self.send_response(501)
        self.end_headers()
        self.wfile.write(f"{self.command} not implemented".encode("utf-8"))
        log_request_to_db("unknown", "unknown", "unknown", "unknown", "unknown", False,
"unknown", self.path)
        log_error_to_db(self.path, 501)

    def do_POST(self):
        self.handle_unsupported_methods()

    def do_PUT(self):
        self.handle_unsupported_methods()

    def do_DELETE(self):
        self.handle_unsupported_methods()

    def do_HEAD(self):
        self.handle_unsupported_methods()

    def do_CONNECT(self):
        self.handle_unsupported_methods()

    def do_OPTIONS(self):
        self.handle_unsupported_methods()

    def do_TRACE(self):
        self.handle_unsupported_methods()

    def do_PATCH(self):
        self.handle_unsupported_methods()


class ThreadingHTTPServer(ThreadingMixIn, HTTPServer):
    """Allows the server to handle requests in separate threads."""
```

```
    pass

def runServer(serverAddress, port):
    """Starts the HTTP server."""
    logging.info("Starting HTTP server...")
    server = ThreadingHTTPServer((serverAddress, port), RequestHandler)
    server.serve_forever()

if __name__ == "__main__":
    if len(sys.argv) < 4:
        logging.error("Usage: python3 web-server.py <SQL_SERVER_IP> <DB_NAME> <PUBSUB_TOPIC>")
        sys.exit(1)

    logging.info("Setting up database credentials and schema.")
    set_db_credentials(sys.argv[1], sys.argv[2], sys.argv[3])
    create_schema_if_not_exists()
    runServer("0.0.0.0", 8080)
```

- Add a schema verificaiton to see if it exists andto create the schema that we manually did in the past homework to create requests and failed_requests tables
- Create the script so its more dynamic to accept SQL IP, table name, and pub/sub names as the YAML creates everything dynamically
- Python multithreaded web server using http.server and ThreadingHTTPServer to handle concurrent requests
    - ThreadingMixIn allows each request to be handled in own thread
- Use do_GET to check the X-Country header against a list of banned countries
    - If matched, logs the request, sends a Pub/Sub message to tracker app, and returns a 400 error
    - If the requested file is not from a banned country, do_GET() we want to get the file from google cloud storage
    - If the file exists, get its content and return a 200
    - If not, it logs a 404 error and responds with "file not found"
- Connect to the database using mysql.connector.connect with host IP, username, password, and database name
- Log each request's details to MySQL using function log_request_to_db, recording country, client_ip, gender, age, income, is_banned, time_of_day, and requested_file
- Unsupported HTTP methods (POST, DELETE, etc.) are logged and responded to with a 501 error using handle_unsupported_methods
- Executes an INSERT SQL command to add request data to the requests table and commits after each entry to save it
- Log all incoming requests (both successful and error cases) to google cloud logging and requests tables

- Log all failed requests (requests that are not 200) to the failed_requests table

pubsub-listener.py

```python
from google.cloud import pubsub_v1
from google.cloud import logging
import sys

PROJECT_ID = 'ds561-bucs'

logging_client = logging.Client()
log_name = "banned-country-listener"
logger = logging_client.logger(log_name)

def callback(message):
    log_entry = f"Received message from banned country: {message.data.decode('utf-8')}"
    print(log_entry)
    logger.log_text(log_entry)
    message.ack()

def listenToBannedCountryMessages(subscription_name):
    subscriber = pubsub_v1.SubscriberClient()
    subscription_path = subscriber.subscription_path(PROJECT_ID, subscription_name)
    start_log = f"Listening for messages on {subscription_path}..."
    print(start_log)
    logger.log_text(start_log)
    streaming_pull_future = subscriber.subscribe(subscription_path, callback=callback)
    try:
        streaming_pull_future.result()
    except KeyboardInterrupt:
        stop_log = "Listener interrupted by user (KeyboardInterrupt)."
        print(stop_log)
        logger.log_text(stop_log)
        streaming_pull_future.cancel()
    except Exception as e:
        error_log = f"Error occurred in listener: {e}"
        print(error_log)
        logger.log_text(error_log)
    finally:
        print("Shutting down listener...")

if __name__ == "__main__":
    if len(sys.argv) < 2:
        usage_log = "Usage: python3 listener.py <SUBSCRIPTION_NAME>"
        print(usage_log)
        logger.log_text(usage_log)
        sys.exit(1)

    subscription_name = sys.argv[1]
    listenToBannedCountryMessages(subscription_name)
```

- Python app using pubsub_v1 to listen for messages from Pub/Sub
- Callback function prints messages from banned countries
- Subscribes to the banned-country-subscription in project ds561-bucs
- Listens for messages from the Pub/Sub topic with subscriber.subscribe
- Run in the background, waiting for messages until stopped manually
- Handle interrupts to stop listening with streamingPullFuture.cancel
- When a message is received, it shows the banned country and tracks the request
- Use pub/sub to connect and share info between this app and the web server
- Make pub/sub so its dynamic with the pub/sub name we are using
- Add cloud logging so we can see that the python script is running correctly and logs errors too from its respective VM

Walkthrough

1) Run GDM to create deployment

Command: gcloud deployment-manager deployments create application-deployment --config deployment.yaml

```
/mnt/c/Users/jerem/dev/github/ds561/10-google-deployment-manager-bui-jeremy$ gcloud deployment-manager deployments create application-deployment --config deployment.yaml
The fingerprint of the deployment is b'lpGPFuuqL3MHQAw_512eNQ=='
Waiting for create [operation-1733462132447-628931aa2da17-6f4c15a2-f29cdaf8]...done.
WARNING: Create operation operation-1733462132447-628931aa2da17-6f4c15a2-f29cdaf8 completed with warnings:
---
code: NOT_CRITICAL_ERROR
message: |-
  The deployment uses actions, which are an unsupported feature. We recommend that you avoid using actions. For more information visit: https://cloud.google.com/deployment-manager/docs/migrations/actions
  Examples of actions used (some actions may not be in this list):
  gcp-types/storage-v1:storage.objects.copy

NAME                          TYPE                                      STATE      ERRORS  INTENT
allow-http-https              compute.v1.firewall                       COMPLETED  []
banned-country-subscription   pubsub.v1.subscription                    COMPLETED  []
banned-country-topic          pubsub.v1.topic                           COMPLETED  []
copy-files-to-hw10            gcp-types/storage-v1:storage.objects.copy COMPLETED  []
hw10-database                 sqladmin.v1beta4.database                 COMPLETED  []
jeremybui_hw10                storage.v1.bucket                         COMPLETED  []
listener-service-account      iam.v1.serviceAccount                     COMPLETED  []
listener-vm                   compute.v1.instance                       COMPLETED  []
sql-instance                  sqladmin.v1beta4.instance                 COMPLETED  []
webserver-service-account     iam.v1.serviceAccount                     COMPLETED  []
webserver-vm                  compute.v1.instance                       COMPLETED  []
```

VM instances

Filter Enter property name or value

	Status	Name ↑	Zone	Recommendations	In use by	Internal IP	External IP	Connect	
☐	✅	listener-vm	us-central1-a			10.128.0.23 (nic0)	34.46.183.4 ☑ (nic0)	SSH ▾	⋮
☐	✅	webserver-vm	us-central1-a			10.128.0.24 (nic0)	34.57.199.167 ☑ (nic0)	SSH ▾	⋮

Related actions

jeremybui_hw10

Location
us (multiple regions in United States)

Storage class
Standard

Public access
Not public

Protection
Soft Delete

OBJECTS	CONFIGURATION	PERMISSIONS	PROTECTION	LIFECYCLE	OBSERVABILITY	INVENTORY REPORTS	OPERATIONS

Folder browser

- jeremybui_hw10
  - files/

Buckets > jeremybui_hw10 > files

CREATE FOLDER   UPLOAD ▾   TRANSFER DATA ▾   OTHER SERVICES ▾

Sort and filter ▾   ▾ Filter   Filter objects and folders

ⓘ Object sorting and filtering can make the Storage browser slower. For faster performance, select Filter by name prefix only from the filtering menu.   DISMISS

	Name ↑	Size	Type	Created	Storage class	Last modified	Public access
☐	0.html	104.4 KB	text/html	Dec 6, 2024, 12:35:22 AM	Standard	Dec 6, 2024, 12:35:22 AM	Not public
☐	1.html	92.3 KB	text/html	Dec 6, 2024, 12:35:23 AM	Standard	Dec 6, 2024, 12:35:23 AM	Not public
☐	10.html	49.8 KB	text/html	Dec 6, 2024, 12:35:24 AM	Standard	Dec 6, 2024, 12:35:24 AM	Not public
☐	100.html	67.2 KB	text/html	Dec 6, 2024, 12:35:24 AM	Standard	Dec 6, 2024, 12:35:24 AM	Not public
☐	1000.html	46 KB	text/html	Dec 6, 2024, 12:35:24 AM	Standard	Dec 6, 2024, 12:35:24 AM	Not public
☐	1001.html	95.7 KB	text/html	Dec 6, 2024, 12:35:23 AM	Standard	Dec 6, 2024, 12:35:23 AM	Not public
☐	1002.html	115.1 KB	text/html	Dec 6, 2024, 12:35:23 AM	Standard	Dec 6, 2024, 12:35:23 AM	Not public
☐	1003.html	91.4 KB	text/html	Dec 6, 2024, 12:35:23 AM	Standard	Dec 6, 2024, 12:35:23 AM	Not public
☐	1004.html	118.5 KB	text/html	Dec 6, 2024, 12:35:23 AM	Standard	Dec 6, 2024, 12:35:23 AM	Not public
☐	1005.html	96.7 KB	text/html	Dec 6, 2024, 12:35:24 AM	Standard	Dec 6, 2024, 12:35:24 AM	Not public
☐	1006.html	65.3 KB	text/html	Dec 6, 2024, 12:35:24 AM	Standard	Dec 6, 2024, 12:35:24 AM	Not public
☐	1007.html	37.7 KB	text/html	Dec 6, 2024, 12:35:24 AM	Standard	Dec 6, 2024, 12:35:24 AM	Not public

All instances > hw10-sql-instance

✅ hw10-sql-instance

MySQL 5.7

1 hour   6 hours   ✓ 1 day   7 days   30 days   Custom ▾

Chart
CPU utilization

→ Go to Query insights for more in-depth info on queries and performance
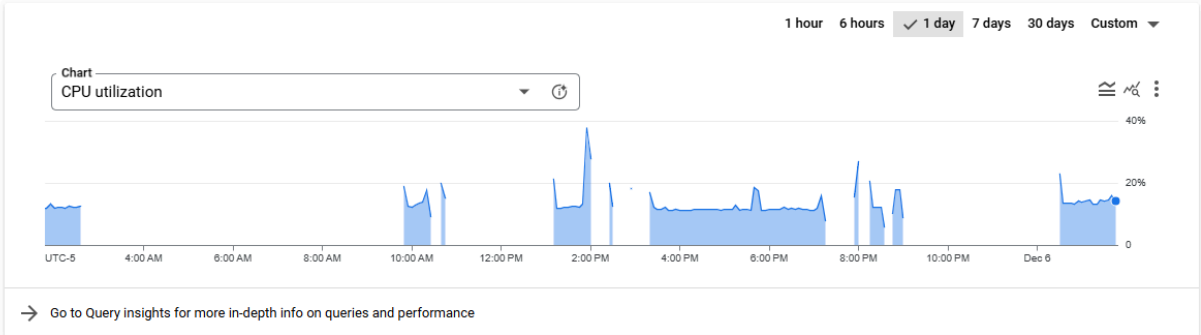
Open Editor

...vered from an existing session.   Dismiss

```
+------------------------------+
| failed_requests              |
| requests                     |
+------------------------------+
2 rows in set (0.03 sec)
```

```
mysql> SELECT * FROM requests;
+----+-------------+--------------+---------+---------+---------+-----------+-------------+--------------------------------+
| id | country     | client_ip    | gender  | age     | income  | is_banned | time_of_day | requested_file                 |
+----+-------------+--------------+---------+---------+---------+-----------+-------------+--------------------------------+
|  1 | USA         | 123.456.78.9 | Male    | 22      | 110k    |         0 | unknown     | /jeremybui_hw10/files/100.html |
|  2 | USA         | 123.456.78.9 | Male    | 22      | 110k    |         0 | unknown     | /jeremybui_hw10/files/100.html |
|  3 | USA         | 123.456.78.9 | Male    | 22      | 110k    |         0 | unknown     | /jeremybui_hw10/files/100.html |
|  4 | USA         | 123.456.78.9 | Male    | 22      | 110k    |         0 | unknown     | /jeremybui_ps2/files/100.html  |
|  5 | USA         | 123.456.78.9 | Male    | 22      | 110k    |         0 | unknown     | /jeremybui_ps2/files/100.html  |
|  6 | USA         | unknown      | unknown | unknown | unknown |         0 | unknown     | /jeremybui_hw10/files/100.html |
|  7 | USA         | unknown      | unknown | unknown | unknown |         0 | unknown     | /jeremybui_hw10/files/100.html |
|  8 | USA         | 123.456.78.9 | Male    | 22      | 110k    |         0 | unknown     | /jeremybui_hw10/files/100.html |
|  9 | USA         | 123.456.78.9 | Male    | 22      | 110k    |         0 | unknown     | /jeremybui_hw10/files/100.html |
| 10 | USA         | 123.456.78.9 | Male    | 22      | 110k    |         0 | unknown     | /jeremybui_hw10/files/100.html |
| 11 | North Korea | 123.456.78.9 | Male    | 22      | 110k    |         1 | unknown     | /jeremybui_hw10/files/100.html |
| 12 | USA         | 123.456.78.9 | Male    | 22      | 110k    |         0 | unknown     | /jeremybui_hw10/files/100.html |
+----+-------------+--------------+---------+---------+---------+-----------+-------------+--------------------------------+
12 rows in set (0.04 sec)
```

2) Run HTTP client to show functionality

python3 http-client.py --domain 34.57.199.167 --bucket jeremybui_hw10 --webdir files
--num_requests 30 --port 8080 --random 561

```
/mnt/c/Users/jerem/dev/github/ds561/10-google-deployment-manager-bui-jeremy$ python3 http-client.py --domain 34.57.199.167  --bucket jeremybui_hw10 --webdir files --num_requests 30 --port 8080 --random 561
/mnt/c/Users/jerem/dev/github/ds561/10-google-deployment-manager-bui-jeremy/http-client.py:229: DeprecationWarning: ssl.PROTOCOL_TLS is deprecated
  ssl_context = ssl.SSLContext(ssl.PROTOCOL_TLS)
/mnt/c/Users/jerem/dev/github/ds561/10-google-deployment-manager-bui-jeremy$
```

```
mysql> SELECT * FROM requests;
Empty set (0.04 sec)

mysql> SELECT * FROM failed_requests;
Empty set (0.03 sec)
```

● (Tables before)
● (Tables after)

```
mysql> SELECT * FROM requests;
+----+------------------------+----------------+--------+-------+-----------+-----------+---------------------+------------------------------------+
| id | country                | client_ip      | gender | age   | income    | is_banned | time_of_day         | requested_file                     |
+----+------------------------+----------------+--------+-------+-----------+-----------+---------------------+------------------------------------+
|  1 | Turkey                 | 90.93.194.254  | Female | 66-75 | 20k-40k   |         0 | 2024-12-06 02:00:00 | jeremybui_hw10/files/63651.html    |
|  2 | Venezuela              | 2.112.61.90    | Female | 76+   | 60k-100k  |         0 | 2024-12-06 22:00:00 | jeremybui_hw10/files/61357.html    |
|  3 | Jordan                 | 184.59.151.244 | Male   | 56-65 | 10k-20k   |         0 | 2024-12-06 18:00:00 | jeremybui_hw10/files/11491.html    |
|  4 | Iran                   | 97.103.155.56  | Male   | 46-55 | 60k-100k  |         1 | 2024-12-06 06:00:00 | jeremybui_hw10/files/79799.html    |
|  5 | Ecuador                | 180.145.232.240| Male   | 56-65 | 10k-20k   |         0 | 2024-12-06 20:00:00 | jeremybui_hw10/files/94599.html    |
|  6 | Solomon Islands        | 213.43.15.225  | Male   | 56-65 | 60k-100k  |         0 | 2024-12-06 02:00:00 | jeremybui_hw10/files/749.html      |
|  7 | Saudi Arabia           | 94.77.45.136   | Male   | 17-25 | 10k-20k   |         0 | 2024-12-06 00:00:00 | jeremybui_hw10/files/1896.html     |
|  8 | Algeria                | 132.6.240.66   | Female | 66-75 | 100k-150k |         0 | 2024-12-06 20:00:00 | jeremybui_hw10/files/26358.html    |
|  9 | Libya                  | 130.163.239.87 | Female | 56-65 | 40k-60k   |         1 | 2024-12-06 00:00:00 | jeremybui_hw10/files/6918.html     |
| 10 | Liberia                | 37.130.200.82  | Male   | 76+   | 0-10k     |         0 | 2024-12-06 03:00:00 | jeremybui_hw10/files/58917.html    |
| 11 | Congo, Republic of the | 214.45.138.52  | Male   | 26-35 | 40k-60k   |         0 | 2024-12-06 02:00:00 | jeremybui_hw10/files/99619.html    |
| 12 | Mali                   | 124.98.120.72  | Female | 36-45 | 60k-100k  |         0 | 2024-12-06 02:00:00 | jeremybui_hw10/files/2918.html     |
| 13 | Saint Lucia            | 168.63.252.15  | Female | 0-16  | 40k-60k   |         0 | 2024-12-06 12:00:00 | jeremybui_hw10/files/36205.html    |
| 14 | Ecuador                | 180.145.232.139| Male   | 56-65 | 10k-20k   |         0 | 2024-12-06 18:00:00 | jeremybui_hw10/files/46233.html    |
| 15 | Latvia                 | 62.127.94.2    | Female | 66-75 | 20k-40k   |         0 | 2024-12-06 10:00:00 | jeremybui_hw10/files/5847.html     |
| 16 | Netherlands            | 228.142.224.156| Male   | 76+   | 100k-150k |         0 | 2024-12-06 13:00:00 | jeremybui_hw10/files/86374.html    |
| 17 | Eritrea                | 91.99.153.153  | Female | 36-45 | 0-10k     |         0 | 2024-12-06 02:00:00 | jeremybui_hw10/files/16183.html    |
| 18 | Kyrgyzstan             | 14.224.39.224  | Male   | 26-35 | 60k-100k  |         0 | 2024-12-06 02:00:00 | jeremybui_hw10/files/3969.html     |
| 19 | Romania                | 235.103.45.43  | Male   | 0-16  | 10k-20k   |         0 | 2024-12-06 00:00:00 | jeremybui_hw10/files/13021.html    |
| 20 | Finland                | 74.190.117.65  | Male   | 46-55 | 60k-100k  |         0 | 2024-12-06 02:00:00 | jeremybui_hw10/files/35690.html    |
| 21 | Cabo Verde             | 95.165.14.155  | Male   | 76+   | 100k-150k |         0 | 2024-12-06 08:00:00 | jeremybui_hw10/files/52918.html    |
| 22 | Iran                   | 228.166.79.4   | Male   | 26-35 | 150k-250k |         1 | 2024-12-06 23:00:00 | jeremybui_hw10/files/63801.html    |
| 23 | Uruguay                | 31.185.14.194  | Male   | 36-45 | 100k-150k |         0 | 2024-12-06 16:00:00 | jeremybui_hw10/files/62039.html    |
| 24 | Mexico                 | 1.60.240.30    | Male   | 46-55 | 150k-250k |         0 | 2024-12-06 07:00:00 | jeremybui_hw10/files/26219.html    |
| 25 | Panama                 | 60.219.234.161 | Female | 26-35 | 0-10k     |         0 | 2024-12-06 02:00:00 | jeremybui_hw10/files/18158.html    |
| 26 | Angola                 | 115.64.63.253  | Male   | 56-65 | 150k-250k |         0 | 2024-12-06 01:00:00 | jeremybui_hw10/files/70081.html    |
| 27 | Cambodia               | 200.168.224.94 | Female | 17-25 | 250k+     |         0 | 2024-12-06 15:00:00 | jeremybui_hw10/files/23291.html    |
| 28 | Chad                   | 187.160.176.71 | Female | 56-65 | 0-10k     |         0 | 2024-12-06 22:00:00 | jeremybui_hw10/files/63206.html    |
| 29 | Nigeria                | 69.121.67.88   | Male   | 17-25 | 10k-20k   |         0 | 2024-12-06 12:00:00 | jeremybui_hw10/files/3482.html     |
| 30 | Yemen                  | 148.41.145.49  | Male   | 56-65 | 20k-40k   |         0 | 2024-12-06 11:00:00 | jeremybui_hw10/files/89747.html    |
+----+------------------------+----------------+--------+-------+-----------+-----------+---------------------+------------------------------------+
30 rows in set (0.04 sec)
```

```
mysql> SELECT * FROM failed_requests;
+----+---------------------+-------------------------------+----------+
| id | time_req            | req_file                      | err_code |
+----+---------------------+-------------------------------+----------+
|  1 | 2024-12-06 07:13:04 | jeremybui_hw10/files/63651.html |      404 |
|  2 | 2024-12-06 07:13:04 | jeremybui_hw10/files/61357.html |      404 |
|  3 | 2024-12-06 07:13:05 | jeremybui_hw10/files/11491.html |      404 |
|  4 | 2024-12-06 07:13:05 | jeremybui_hw10/files/79799.html |      400 |
|  5 | 2024-12-06 07:13:05 | jeremybui_hw10/files/94599.html |      404 |
|  6 | 2024-12-06 07:13:06 | jeremybui_hw10/files/26358.html |      404 |
|  7 | 2024-12-06 07:13:07 | jeremybui_hw10/files/6918.html  |      400 |
|  8 | 2024-12-06 07:13:07 | jeremybui_hw10/files/58917.html |      404 |
|  9 | 2024-12-06 07:13:07 | jeremybui_hw10/files/99619.html |      404 |
| 10 | 2024-12-06 07:13:08 | jeremybui_hw10/files/36205.html |      404 |
| 11 | 2024-12-06 07:13:08 | jeremybui_hw10/files/46233.html |      404 |
| 12 | 2024-12-06 07:13:09 | jeremybui_hw10/files/86374.html |      404 |
| 13 | 2024-12-06 07:13:09 | jeremybui_hw10/files/16183.html |      404 |
| 14 | 2024-12-06 07:13:10 | jeremybui_hw10/files/13021.html |      404 |
| 15 | 2024-12-06 07:13:10 | jeremybui_hw10/files/35690.html |      404 |
| 16 | 2024-12-06 07:13:11 | jeremybui_hw10/files/52918.html |      404 |
| 17 | 2024-12-06 07:13:11 | jeremybui_hw10/files/63801.html |      400 |
| 18 | 2024-12-06 07:13:11 | jeremybui_hw10/files/62039.html |      404 |
| 19 | 2024-12-06 07:13:12 | jeremybui_hw10/files/26219.html |      404 |
| 20 | 2024-12-06 07:13:12 | jeremybui_hw10/files/18158.html |      404 |
| 21 | 2024-12-06 07:13:12 | jeremybui_hw10/files/70081.html |      404 |
| 22 | 2024-12-06 07:13:13 | jeremybui_hw10/files/23291.html |      404 |
| 23 | 2024-12-06 07:13:13 | jeremybui_hw10/files/63206.html |      404 |
| 24 | 2024-12-06 07:13:15 | jeremybui_hw10/files/89747.html |      404 |
+----+---------------------+-------------------------------+----------+
24 rows in set (0.03 sec)
```

```
>  (!!)  2024-12-06 02:53:26.482   [webserver-vm]  Access denied from banned country: North Korea
>  (*)   2024-12-06 02:53:27.289   [listener-vm]   Received message from banned country: {"country": "North Korea"}
```

3) Use CURL to demonstrate functionality

- 200 OK

```
mysql> SELECT * FROM requests;
Empty set (0.03 sec)
```
(before)

```
/mnt/c/Users/jerem/dev/github/ds561/10-google-deployment-manager-bui-jeremy$ curl -X GET "http://34.57.199.167:8080/jeremybui_hw10/files/100.html" -H "X-Country: USA" -H "X-client-IP: 123.456.78.9" -H "X-gende
r: Male" -H "X-age: 22" -H "X-income: 110k" -H "X-time 2024-12-05 12:00:00"
<!DOCTYPE html>
<html>
<body>
Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad
minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse
cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.
<p>
<a HREF="2135.html"> This is a link </a>
<p>
Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad
minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse
cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.
<p>
<a HREF="3785.html"> This is a link </a>
```

```
mysql> SELECT * FROM requests;
+----+---------+-------------+--------+-----+--------+-----------+-------------+--------------------------------+
| id | country | client_ip   | gender | age | income | is_banned | time_of_day | requested_file                 |
+----+---------+-------------+--------+-----+--------+-----------+-------------+--------------------------------+
|  1 | USA     | 123.456.78.9 | Male  | 22  | 110k   |         0 | unknown     | /jeremybui_hw10/files/100.html |
+----+---------+-------------+--------+-----+--------+-----------+-------------+--------------------------------+
1 row in set (0.03 sec)
```
(after)

- 404 Error

```
mysql> SELECT * FROM requests;
+----+---------+-------------+--------+-----+--------+-----------+-------------+-----------------------------------+
| id | country | client_ip   | gender | age | income | is_banned | time_of_day | requested_file                    |
+----+---------+-------------+--------+-----+--------+-----------+-------------+-----------------------------------+
|  1 | USA     | 123.456.78.9 | Male  | 22  | 110k   |         0 | unknown     | /jeremybui_hw10/files/100.html    |
+----+---------+-------------+--------+-----+--------+-----------+-------------+-----------------------------------+
1 row in set (0.04 sec)

mysql> SELECT * from failed_requests;
Empty set (0.03 sec)
```
(before)

```
/mnt/c/Users/jerem/dev/github/ds561/10-google-deployment-manager-bui-jeremy$ curl -X GET "http://34.57.199.167:8080/jeremybui_hw10/files/nonexistent.html" -H "X-Country: USA" -H "X-client-IP: 123.456.78.9" -H
"X-gender: Male" -H "X-age: 22" -H "X-income: 110k" -H "X-time 2024-12-05 12:00:00"
File not found/mnt/c/Users/jerem/dev/github/ds561/10-google-deployment-manager-bui-jeremy$
```

```
   >  ‼  2024-12-06 03:06:01.070    🖥 webserver-vm  File /jeremybui_hw10/files/nonexistent.html not found
```

```
mysql> SELECT * FROM requests;
+----+---------+-------------+--------+-----+--------+-----------+-------------+-----------------------------------+
| id | country | client_ip   | gender | age | income | is_banned | time_of_day | requested_file                    |
+----+---------+-------------+--------+-----+--------+-----------+-------------+-----------------------------------+
|  1 | USA     | 123.456.78.9 | Male  | 22  | 110k   |         0 | unknown     | /jeremybui_hw10/files/100.html    |
|  2 | USA     | 123.456.78.9 | Male  | 22  | 110k   |         0 | unknown     | /jeremybui_hw10/files/nonexistent.html |
+----+---------+-------------+--------+-----+--------+-----------+-------------+-----------------------------------+
2 rows in set (0.03 sec)

mysql> SELECT * from failed_requests;
+----+---------------------+-----------------------------------+----------+
| id | time_req            | req_file                          | err_code |
+----+---------------------+-----------------------------------+----------+
|  1 | 2024-12-06 08:06:01 | /jeremybui_hw10/files/nonexistent.html |      404 |
+----+---------------------+-----------------------------------+----------+
1 row in set (0.03 sec)
```
(after)

- 501 Error

```
mysql> SELECT * FROM requests;
+----+---------+-------------+--------+-----+--------+-----------+-------------+-----------------------------------+
| id | country | client_ip   | gender | age | income | is_banned | time_of_day | requested_file                    |
+----+---------+-------------+--------+-----+--------+-----------+-------------+-----------------------------------+
|  1 | USA     | 123.456.78.9 | Male  | 22  | 110k   |         0 | unknown     | /jeremybui_hw10/files/100.html    |
+----+---------+-------------+--------+-----+--------+-----------+-------------+-----------------------------------+
1 row in set (0.04 sec)

mysql> SELECT * from failed_requests;
Empty set (0.03 sec)
```
(before)

```
/mnt/c/Users/jerem/dev/github/ds561/10-google-deployment-manager-bui-jeremy$ curl -X POST "http://34.57.199.167:8080/jeremybui_hw10/files/nonexistent.html" -H "X-Country: USA" -H "X-client-IP: 123.456.78.9" -H
"X-gender: Male" -H "X-age: 22" -H "X-income: 110k" -H "X-time 2024-12-05 12:00:00"
POST not implemented/mnt/c/Users/jerem/dev/github/ds561/10-google-deployment-manager-bui-jeremy$
```

```
   >  ‼  2024-12-06 03:11:24.102    🖥 webserver-vm  Unsupported method POST was used for /jeremybui_hw10/files/nonexistent.html
```

```
mysql> SELECT * FROM requests;
+----+---------+-------------+--------+--------+--------+-----------+-------------+-----------------------------------+
| id | country | client_ip   | gender | age    | income | is_banned | time_of_day | requested_file                    |
+----+---------+-------------+--------+--------+--------+-----------+-------------+-----------------------------------+
|  1 | USA     | 123.456.78.9 | Male  | 22     | 110k   |         0 | unknown     | /jeremybui_hw10/files/100.html    |
|  2 | USA     | 123.456.78.9 | Male  | 22     | 110k   |         0 | unknown     | /jeremybui_hw10/files/nonexistent.html |
|  3 | unknown | unknown     | unknown | unknown | unknown |        0 | unknown     | /jeremybui_hw10/files/nonexistent.html |
+----+---------+-------------+--------+--------+--------+-----------+-------------+-----------------------------------+
3 rows in set (0.03 sec)

mysql> SELECT * from failed_requests;
+----+---------------------+-----------------------------------+----------+
| id | time_req            | req_file                          | err_code |
+----+---------------------+-----------------------------------+----------+
|  1 | 2024-12-06 08:06:01 | /jeremybui_hw10/files/nonexistent.html |      404 |
|  2 | 2024-12-06 08:11:24 | /jeremybui_hw10/files/nonexistent.html |      501 |
+----+---------------------+-----------------------------------+----------+
2 rows in set (0.03 sec)
```
(after)

- 400 Error

```
mysql> SELECT * FROM requests;
+----+---------+-------------+---------+---------+--------+-----------+-------------+--------------------------------------+
| id | country | client_ip   | gender  | age     | income | is_banned | time_of_day | requested_file                       |
+----+---------+-------------+---------+---------+--------+-----------+-------------+--------------------------------------+
|  1 | USA     | 123.456.78.9| Male    | 22      | 110k   |         0 | unknown     | /jeremybui_hw10/files/100.html       |
|  2 | USA     | 123.456.78.9| Male    | 22      | 110k   |         0 | unknown     | /jeremybui_hw10/files/nonexistent.html |
|  3 | unknown | unknown     | unknown | unknown | unknown|         0 | unknown     | /jeremybui_hw10/files/nonexistent.html |
+----+---------+-------------+---------+---------+--------+-----------+-------------+--------------------------------------+
3 rows in set (0.03 sec)

mysql> SELECT * from failed_requests;
+----+---------------------+------------------------------------+----------+
| id | time_req            | req_file                           | err_code |
+----+---------------------+------------------------------------+----------+
|  1 | 2024-12-06 08:06:01 | /jeremybui_hw10/files/nonexistent.html |      404 |
|  2 | 2024-12-06 08:11:24 | /jeremybui_hw10/files/nonexistent.html |      501 |
+----+---------------------+------------------------------------+----------+
2 rows in set (0.03 sec)
```
(before)

```
/mnt/c/Users/jerem/dev/github/ds561/10-google-deployment-manager-bui-jeremy$ curl -X GET "http://34.57.199.167:8080/jeremybui_hw10/files/100.html" -H "X-Country: North Korea" -H "X-client-IP: 123.456.78.9" -H
"X-gender: Male" -H "X-age: 22" -H "X-income: 110k" -H "X-time 2024-12-05 12:00:00"
Access denied: Request from banned country/mnt/c/Users/jerem/dev/github/ds561/10-google-deployment-manager-bui-jeremy$
```

```
>  🔴  2024-12-06 03:14:19.546   🖥 webserver-vm   Access denied from banned country: North Korea

>  ✳  2024-12-06 03:14:19.724   🖥 listener-vm    Received message from banned country: {"country": "North Korea"}
```

```
mysql> SELECT * FROM requests;
+----+-------------+-------------+---------+---------+---------+-----------+-------------+--------------------------------------+
| id | country     | client_ip   | gender  | age     | income  | is_banned | time_of_day | requested_file                       |
+----+-------------+-------------+---------+---------+---------+-----------+-------------+--------------------------------------+
|  1 | USA         | 123.456.78.9| Male    | 22      | 110k    |         0 | unknown     | /jeremybui_hw10/files/100.html       |
|  2 | USA         | 123.456.78.9| Male    | 22      | 110k    |         0 | unknown     | /jeremybui_hw10/files/nonexistent.html |
|  3 | unknown     | unknown     | unknown | unknown | unknown |         0 | unknown     | /jeremybui_hw10/files/nonexistent.html |
|  4 | unknown     | unknown     | unknown | unknown | unknown |         0 | unknown     | /                                    |
|  5 | unknown     | unknown     | unknown | unknown | unknown |         0 | unknown     | /jeremybui_hw10/files/100.html       |
|  6 | North Korea | 123.456.78.9| Male    | 22      | 110k    |         1 | unknown     | /jeremybui_hw10/files/100.html       |
|  7 | North Korea | 123.456.78.9| Male    | 22      | 110k    |         1 | unknown     | /jeremybui_hw10/files/100.html       |
+----+-------------+-------------+---------+---------+---------+-----------+-------------+--------------------------------------+
7 rows in set (0.03 sec)

mysql> SELECT * from failed_requests;
+----+---------------------+------------------------------------+----------+
| id | time_req            | req_file                           | err_code |
+----+---------------------+------------------------------------+----------+
|  1 | 2024-12-06 08:06:01 | /jeremybui_hw10/files/nonexistent.html |      404 |
|  2 | 2024-12-06 08:11:24 | /jeremybui_hw10/files/nonexistent.html |      501 |
|  3 | 2024-12-06 08:14:03 | /                                  |      500 |
|  4 | 2024-12-06 08:14:07 | /jeremybui_hw10/files/100.html     |      501 |
|  5 | 2024-12-06 08:14:16 | /jeremybui_hw10/files/100.html     |      400 |
|  6 | 2024-12-06 08:14:19 | /jeremybui_hw10/files/100.html     |      400 |
+----+---------------------+------------------------------------+----------+
6 rows in set (0.04 sec)
```
(after)

5) Cleanup

- Manually delete files inside bucket (TA stated on Piazza that it was acceptable)
- gcloud deployment-manager deployments delete application-deployment

```
/mnt/c/Users/jerem/dev/github/ds561/10-google-deployment-manager-bui-jeremy$ gcloud deployment-manager deployments delete application-deployment
The following deployments will be deleted:
- application-deployment

Do you want to continue (y/N)?  y

Waiting for delete [operation-1733473130869-62895aa3174dd-6c008a9f-28879988]...done.
Delete operation operation-1733473130869-62895aa3174dd-6c008a9f-28879988 completed successfully.
```

- VMs:

- Bucket:

- SQL (nothing):

Google Cloud   ds561-bucs ▾   Search (/) for resources, docs, products, and more

ⓘ Secure your account and protect your data by turning on multi-factor authentication. Add an extra layer of security today.

Cloud SQL

Cloud SQL offers a fully-managed database service for MySQL, PostgreSQL, and SQL Server, reducing your overall cost of operations and freeing up teams to focus on innovation
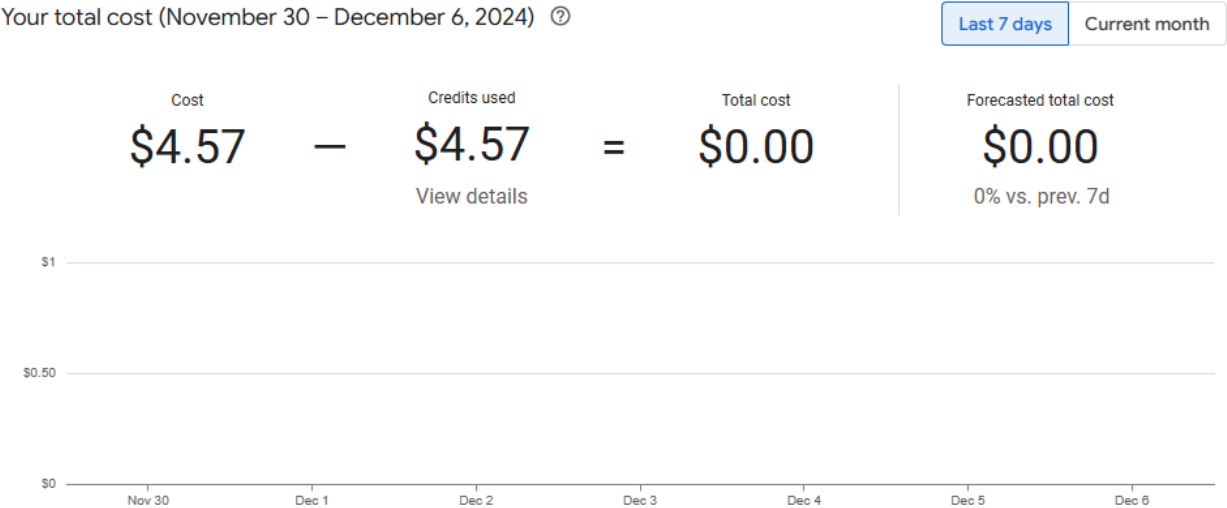
CREATE INSTANCE   ⇄ MIGRATE DATABASE

Steps to get started

1   Create an instance

Cloud SQL in a minute

Cost

Your total cost (November 30 – December 6, 2024) ⓘ   Last 7 days   Current month

Cost		Credits used		Total cost	Forecasted total cost
$4.57	—	$4.57	=	$0.00	$0.00
		View details			0% vs. prev. 7d

$1

$0.50

$0

Nov 30   Dec 1   Dec 2   Dec 3   Dec 4   Dec 5   Dec 6

→ View details on Reports