## HW10 - David Euijoon Kim - GDM (Google Deployment Manager)

https://github.com/dk-davidekim/Google-Cloud-Computing.git

## 1. Change app\_one.py

Create the database and the tables if they do not exist.

```
def initialize_database()

def initialize_database()

def initialize_database(s))

def initialize_database(s))

def initialize_database(s)

cone.executeftext("EME NATABASE IF NOT EXISTS haldeb"))

cone.executeftext("EME NATABASE IF NOT NATABASE IF NATABASE IF NOT NATABASE IF NATABASE INTO EXISTS Failed Requests (

in INT AND NARRHENT PRIMARY KEY,

description TEXT

cone.executeftext("""

CRAFT TABLE IF NOT EXISTS Failed Requests (
in INT AND NARRHENT PRIMARY KEY,

time_of-request TIME_
file_id INT,

FOREION KEY (file_id) REFERENCES Files(file_id),

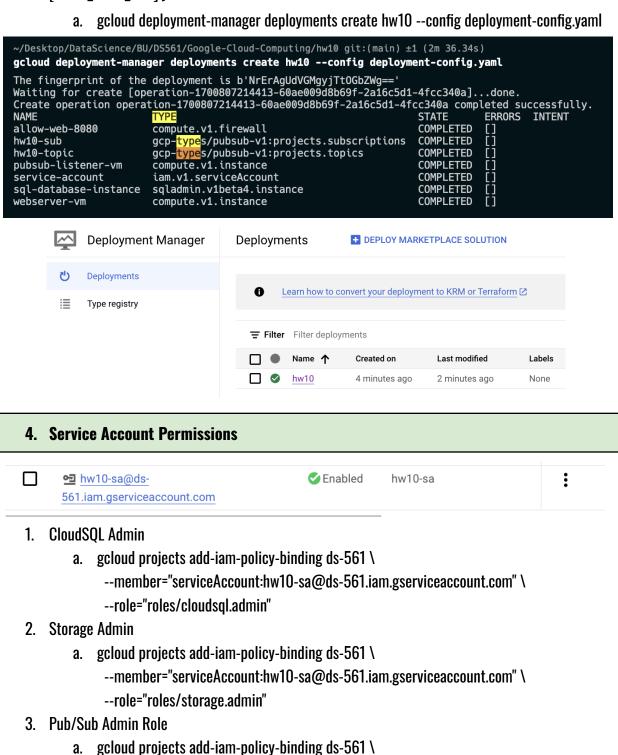
FOREION KEY (file_id) REFERENCES FILES(file_id),
```

# 2. Write a Declarative Configuration for GDM (deployment-config.yaml)

```
| Compared | Comparing | Note | Comparing | Note | Comparing | Note | Comparing | Comparin
```

### 3. Deploy the Configuration

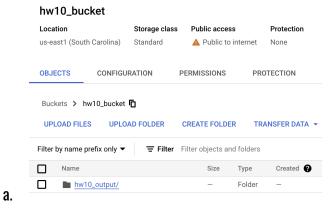
gcloud deployment-manager deployments create [DEPLOYMENT\_NAME] --config
 [YOUR\_YAML\_FILE].yaml



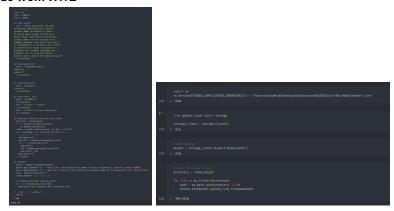
- --member="serviceAccount:hw10-sa@ds-561.iam.gserviceaccount.com" \
- --role="roles/pubsub.admin"
- 4. Logging Admin Role
  - a. gcloud projects add-iam-policy-binding ds-561  $\$ 
    - --member="serviceAccount:hw10-sa@ds-561.iam.gserviceaccount.com" \
    - --role="roles/logging.admin"

## 5. Storage Bucket

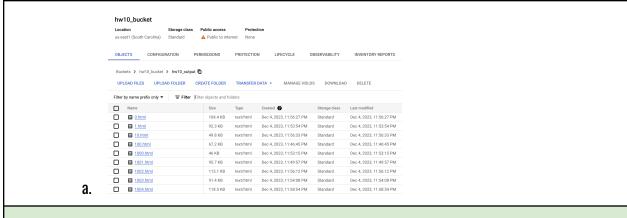
1. Check Deployment



2. Run Code from HW2



a. Since the control of the control



#### 6. Cloud SQL

- 1. Set Password:
  - a. gcloud sql users set-password root --host=% --instance=sql-database-instance
     --password=dk98
- 2. Update .env for app\_one.py



Create hw10db

a.

## 7. VM1 - webserver-vm



- 1. Reserve Static IP Address
  - a. 34.138.168.90
- 2. Edit app\_one.py based on new instances
- 3. Send app\_one.py and .env file to VM
  - a. gcloud compute scp /Users/davidekim/Desktop/DataScience/BU/DS561/Google-Cloud-Computing/hw10/app \_one.py webserver-vm:~/app\_one.py --zone us-east1-b
  - b. gcloud compute scp /Users/davidekim/Desktop/DataScience/BU/DS561/Google-Cloud-Computing/hw10/.en v webserver-vm:~/.env --zone us-east1-b
- 4. Install Dependencies in SSH

- a. sudo apt-get update
- b. sudo apt-get install python3 python3-pip
- c. pip3 install cloud-sql-python-connector python-dotenv sqlalchemy pymysql
- d. pip3 install Flask google-cloud-storage google-cloud-pubsub google-cloud-logging
- 5. Configure Webserver in SSH
  - a. sudo nano /etc/systemd/system/hw10webserver.service
  - b. [Unit]

Description=HW10 Web Server

[Service]

ExecStart=/usr/bin/python3 app\_one.py

Restart=always

User=dk98

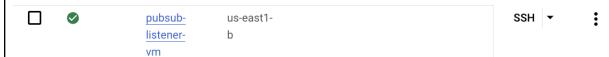
WorkingDirectory=/home/davidekim

[Install]

WantedBy=multi-user.target

c. Restart VM to start the webserver

## 8. VM2 - pubsub-listener-vm



- 1. Edit app\_two.py based on new instances
- 2. Send app\_two.py to VM
  - a. gcloud compute scp

/Users/davidekim/Desktop/DataScience/BU/DS561/Google-Cloud-Computing/hw10/app\_two.py pubsub-listener-vm:~/app\_two.py --zone us-east1-b

- 3. Install Dependencies in SSH
  - a. sudo apt-get update
  - b. sudo apt-get install python3 python3-pip
  - c. pip3 install google-cloud-pubsub
- 4. Run python3 app\_two.py

```
dk98@pubsub-listener-vm:/home/davidekim$ ls
app_two.py
dk98@pubsub-listener-vm:/home/davidekim$ python3 app_two.py
Listening for messages on: projects/ds-561/subscriptions/hw10-sub
```

#### 9. Curl Commands

#### 1. Status 200

- a. curl -X GET \
  - -H "X-country: South Korea" \
  - -H "X-client-IP: 0.0.0.0" \
  - -H "X-gender: Male" \
  - -H "X-age: 20-25" \
  - -H "X-income: 200k-300k" \
  - "http://34.138.168.90:8080/hw10\_output/1234.html"

```
curl -X GET\
-H "X-country: South Korea" \
-H "X-client-IP: 0.0.0.0" \
-H "X-gender: Male" \
-H "X-income: 200k-300k" \
"http://34.138.168.90:8080/hw10_output/1234.html" \
<a href="4978.html"> This is a link </a></a>
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. Duts aute irure dolor in reprehenderit in v oluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id es t laborum. 
<a href="3230.html"> This is a link </a>
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 v oluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id es t laborum.
```

#### 2. Status 404

- a. curl -X GET \
  - -H "X-country: USA" \
  - -H "X-client-IP: 1.2.3.4" \
  - -H "X-gender: Female" \
  - -H "X-age: 20-24" \
  - -H "X-income: 400k-500k" \
  - "http://34.138.168.90:8080/hw10\_output/12345.html"

```
~ (0.426s)
curl -X GET \
    -H "X-country: USA" \
    -H "X-client-IP: 1.2.3.4" \
    -H "X-gender: Female" \
    -H "X-age: 20-24" \
    -H "X-income: 400k-500k" \
    "http://34.138.168.90:8080/hw10_output/12345.html"

File not found?
```

#### 3. Status 501

a. curl -X POST \

-H "X-country: North Korea" \
-H "X-client-IP: 1.2.3.4" \

-H "X-gender: Male" \
-H "X-age: 20-25" \

-H "X-income: 10k-20k" \

"http://34.138.168.90:8080/hw10\_output/1234.html"

```
~ (0.308s)

curl -X POST \
    -H "X-country: North Korea" \
    -H "X-client-IP: 1.2.3.4" \
    -H "X-gender: Male" \
    -H "X-age: 20-25" \
    -H "X-income: 10k-20k" \
    "http://34.138.168.90:8080/hw10_output/1234.html"

Not implemented

Not implemented

Not implemented
```

### 10. http-client.py

 python3 http-client.py -d 34.138.168.90 -b /hw10\_bucket -w hw10\_output -n 100 -i 11000 -p 8080 -v -f

```
~/Desktop/DataScience/BU/DS561/Google-Cloud-Computing/hw10 git:(main) ±1
 python3 http-client.py -d 34.138.168.90 -b /hw10_bucket -w hw10_output -n 100 -i 11000 -p 8080 -v -f
128.197.29.238 - - [05/Dec/2023 07:43:10]
                                                      /hw10 bucket/hw10_output/10052.html HTTP/1
128.197.29.238 - -
                     [05/Dec/2023 07:43:10]
                                                "GET /hw10 bucket/hw10 output/3695.html HTTP/1.1" 200
                                                "GET /hw10_bucket/hw10_output/7106.html HTTP/1.1" 200 - "GET /hw10_bucket/hw10_output/2566.html HTTP/1.1" 200 -
128.197.29.238 - -
                     [05/Dec/2023 07:43:10]
                      [05/Dec/2023 07:43:11]
128.197.29.238 - -
128.197.29.238 - -
                     [05/Dec/2023 07:43:11]
                                                "GET /hw10 bucket/hw10 output/7688.html HTTP/1.1"
128.197.29.238 - - [05/Dec/2023 07:43:12]
128.197.29.238 - -
                      [05/Dec/2023 07:43:12]
                                                "GET /hw10 bucket/hw10 output/980.html HTTP/1.1" 200
128.197.29.238 - -
                     [05/Dec/2023 07:43:12]
                                                "GET /hw10 bucket/hw10 output/4661.html HTTP/1.1" 200
                                               "GET /hw10_bucket/hw10_output/9989.html HTTP/1.1" 200
"GET /hw10_bucket/hw10_output/8282.html HTTP/1.1" 200
128.197.29.238 - -
                     [05/Dec/2023 07:43:13]
128.197.29.238
                      [05/Dec/2023 07:43:13]
                                                                                    0596.html HTTP/1.1" 404
128.197.29.238 - -
                      [05/Dec/2023 07:43:14]
128.197.29.238 - -
                      [05/Dec/2023 07:43:14]
                                               "GET /hw10_bucket/hw10_output/9522.html HTTP/1.1" 200 -
128.197.29.238
                      [05/Dec/2023 07:43:15]
                                                "GET /hw10 bucket/hw10 output/2115.html HTTP/1.1" 200
                                                "GET /hw10_bucket/hw10_output/1188.html HTTP/1.1" 200
128.197.29.238
                      [05/Dec/2023 07:43:15]
128.197.29.238 - -
                      [05/Dec/2023 07:43:15]
                                               "GET /hw10_bucket/hw10_output/28.html HTTP/1.1" 200 -
                                               "GET /hw10_bucket/hw10_output/5873.html HTTP/1.1" 200 -
"GET /hw10_bucket/hw10_output/2436.html HTTP/1.1" 200 -
128.197.29.238
                      [05/Dec/2023 07:43:16]
128.197.29.238
                      [05/Dec/2023 07:43:16]
                                               "GET /hw10_bucket/hw10_output/749.html HTTP/1.1" 200
128.197.29.238
                      [05/Dec/2023 07:43:17]
128.197.29.238
                      [05/Dec/2023 07:43:17]
                                                "GET
                                                      /hw10 bucket/hw10 output/6312.html HTTP/1.1" 200 -
128.197.29.238
                      [05/Dec/2023 07:43:18]
                      [05/Dec/2023 07:43:18] "GET /hw10_bucket/hw10_output/4714.html HTTP/1.1" 200 -
128.197.29.238
                                               "GET /hw10_bucket/hw10_output/6472.html HTTP/1.1" 200
"GET /hw10_bucket/hw10_output/3252.html HTTP/1.1" 200
128.197.29.238
                      [05/Dec/2023 07:43:18]
128.197.29.238
                      [05/Dec/2023 07:43:19]
                                                "GET /hw10_bucket/hw10_output/9951.html HTTP/1.1" 200 -
128.197.29.238
                      [05/Dec/2023 07:43:19]
                                               "GET /hw10_bucket/hw10_output/3648.html HTTP/1.1" 200
"GET /hw10_bucket/hw10_output/79.html HTTP/1.1" 200 -
128.197.29.238
                      [05/Dec/2023 07:43:20]
128.197.29.238
                      [05/Dec/2023 07:43:20]
```

```
dk98@pubsub-listener-vm:/home/davidekim$ python3 app two.py
Listening for messages on: projects/ds-561/subscriptions/hw10-sub
Received message: {'400 Forbidden from country': 'North Korea'}
Received message: {'400 Forbidden from country': 'Syria'}
Received message: {'400 Forbidden from country': 'Iraq'}
Received message: {'400 Forbidden from country': 'Sudan'}
Received message: { '400 Forbidden from country': 'Sudan'}
Received message: {'400 Forbidden from country': 'Sudan'}
Received message: {'400 Forbidden from country': 'Libya'}
All instances > sql-database-instance
sal-database-instance
A log of operations your database instance is currently running and has completed. Learn more [2]
              Completion Time
                                                              Type
                                                                                    Status
 Dec 5, 2023, 2:46:41 AM
                               Dec 5, 2023, 2:47:04 AM
                                                              Undate
                                                                                    Undate finished
           mysql> use hw10db
           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> show tables;
           +-----
           | Tables in hw10db |
           | Clients
           | ErrorCodes
           | Failed Requests
           | Files
           | Requests
           5 rows in set (0.00 sec)
                                          mysql> SELECT * FROM Failed Requests;
 mysql> SELECT * FROM Requests
                                          | id | time_of_request | file_id | error_code_id |
  | id | client id | file id | time of day |
                                            1 | 07:04:45
                                                                        2 |
                                                                                       1 |
                    1 | 07:03:36
19 | 07:42:35
                                            2 | 07:05:15
                                                                                       2 |
                                            3 | 07:41:46
                                                                       3 |
              19 |
    3 |
                       20 | 07:42:36
                                                                                       1 I
                      21 | 07:42:36
                                             5 | 07:41:47
                                                                       5 |
                       22 | 07:42:36
24 | 07:42:37
    5 I
                                            6 | 07:41:47
                                                                       6 |
                                                                                       1 |
    6 |
                                            7 | 07:41:48
                                                                                       1 1
                       25 | 07:42:38
                                             8 | 07:41:48
                                                                        8
    8 |
              25 |
                       26 | 07:42:39
                                            9 | 07:41:48
                                                                       9 I
                       27 | 07:42:39
                                                                      10 I
                       28 | 07:42:40
29 | 07:42:40
   10 |
                                            11 | 07:41:49
                                                                       11 |
              28 |
                                            12 | 07:41:49
                                                                       12 I
                       30 | 07:42:41
   12 |
              29 |
                                            13 | 07:41:50
                                                                       13 |
                       31 | 07:42:41
   13 |
                                            14 | 07:41:50
                                                                       14 |
   14 I
                                                                       15 I
   15 I
              32 |
                       33 | 07:42:42
                                            16 | 07:41:51
                       34 | 07:42:42
                                            17 | 07:41:52
                                                                       17 I
              34 |
                       35 | 07:42:43
                                            18 | 07:41:52
                       36 | 07:42:43
              35 I
                       37 | 07:42:44
                                            19 | 07:42:37
   19
              36
                                          | 20 | 07:42:44
                                                                       38 I
                       39 | 07:42:45
```

## 11. Shut Down GDM and Clean Up Resources

- 1. Delete all resources using GDM
  - a. gcloud deployment-manager deployments delete [DEPLOYMENT\_NAME]
  - b. gcloud deployment-manager deployments delete hw10

