

Week #5 Labs

05.1g: Storage, IAM	1
2. GCP Cloud Storage #1 (USGS)	1
4. USGS data and setup	1
5. Python plotting Code	2
9. Service account roles (Compute)	2
10. Service account roles (Storage)	2
13. View object	3
05.2a: DynamoDB Guestbook	3
5. Run the application	3
7. Run the application	5
8. Push the container image	8
11. Run the application	8
15. Visit the application	10
16. View the database	11
05.2g: Cloud Datastore Guestbook	12
7. Run the application	12
9. Run the application	12

05.1g: Storage, IAM

2. GCP Cloud Storage #1 (USGS)

The role attached to the Compute Engine default service account is **‘Editor’**.

Yes, the **‘Editor’** role is sufficient for the VM to create buckets, and read/write to them.

The default ‘access scopes’ to Cloud Storage is **read-only**.

No, the default ‘access scopes’ would not allow the VM to create buckets, only read them.

The options for the Storage API are: None, Read Only, Write Only, Read Write, Full.

4. USGS data and setup

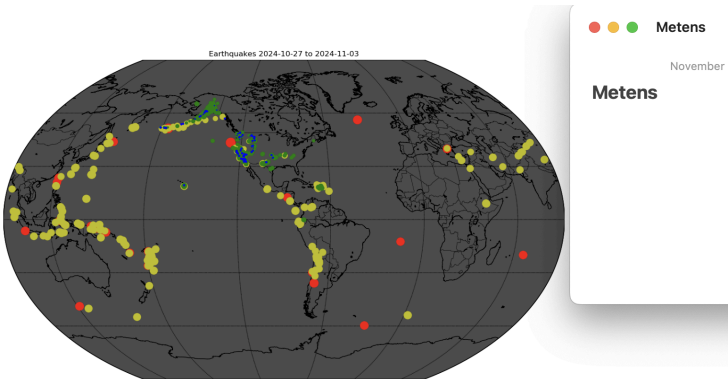
According to the `head -2 earthquakes.csv | column -t -s ', '` command, the latest earthquake happened at time: **2024-11-03T19:42:54.568Z**.

The magnitude of the earthquake was **1.9**.

The place of the earthquake is **of**.

```
catena@usgs:~/training-data-analyst/CPB100/lab2b$ head -2 earthquakes.csv | column -t -s ', '
time                latitude longitude depth mag magType net gap dmin rms      net id updated place type horizontalError depthError magError maglat status locationSource magSource
2024-11-03T19:42:54.568Z 59.7775 -151.498 25.2 1.9 mb 0.93 AK ak0246Sp38vk 2024-11-03T19:44:51.683Z -5 km SW of Nikolaevsk Alaska earthquake 0.3 automatic AK AK
```

5. Python plotting Code



9. Service account roles (Compute)

The error I got from running the command: `gcloud compute instances list` was this:

WARNING: Some requests did not succeed.

- Required `'compute.instances.list'` permission for `'projects/cloud-metens'`

Listed 0 items.

For the VM to have access to the list of a project's Compute Engine resources, the role of **Compute Viewer** must be added.

```
metens@gcs-lab-vm:~$ gcloud compute instances list
```

NAME	ZONE	MACHINE_TYPE	PREEMPTIBLE	INTERNAL_IP	EXTERNAL_IP	STATUS
instance-4-europe-west1-d	europe-west1-d	e2-medium		10.132.0.2		TERMINATED
course-vm2	us-west1-a	e2-medium		10.138.0.7		TERMINATED
course-vm	us-west1-b	e2-medium		10.138.0.2	35.247.101.130	RUNNING
gcs-lab-vm	us-west1-b	e2-medium		10.138.0.18	34.168.81.250	RUNNING
instance-001	us-west1-b	e2-medium		10.138.0.13		TERMINATED
instance-1-us-west1-b	us-west1-b	e2-medium		10.138.0.9		TERMINATED
instance-w5	us-west1-b	e2-medium		10.138.0.16		TERMINATED
usgs	us-west1-b	e2-medium		10.138.0.17	35.203.147.50	RUNNING
instance-2-us-east1-c	us-east1-c	e2-medium		10.142.0.2		TERMINATED
instance-3-australia-sel-a	australia-southeast1-a	e2-medium		10.152.0.2		TERMINATED
instance-1	us-west4-c	n1-standard-1		10.182.0.2		TERMINATED
instance-2	us-west4-a	n1-standard-1		10.182.0.3		TERMINATED

```
metens@gcs-lab-vm:~$
```

10. Service account roles (Storage)

After running the command: `gsutil cp moonquakes.png gs://precious_plumb/` I got error:

Copying file://moonquakes.png [Content-Type=image/png]...

AccessDeniedException: 403 gcs-lab@cloud-metens.iam.gserviceaccount.com does not have storage.objects.create access to the Google Cloud Storage object. Permission `'storage.objects.create'` denied on resource (or it may not exist).

To be able to add an object to the storage bucket, the VM needs to add the **Storage Object Creator** role. Once the role was added:

```
metens@gcs-lab-vm:~$ ls
earthquakes.png moonquakes.png snap
metens@gcs-lab-vm:~$ gsutil cp moonquakes.png gs://precious_plumb/
Copying file:///moonquakes.png [Content-Type=image/png]...
/ [1 files][315.0 KiB/315.0 KiB]
Operation completed over 1 objects/315.0 KiB.
metens@gcs-lab-vm:~$
```

13. View object



05.2a: DynamoDB Guestbook

5. Run the application

I tried to access the flask app from my web browsers for over an hour and tried clearing my cache, changing the port, and the incognito window, and tried to connect to the Windows app but nothing worked. So I used curl to post on the app instead, here is my work:

```
(env) metens@instance-20241104-185212:~/cs430-src/05_aws_dynamodb$ ls
Dockerfile  __pycache__ application.py env gbmodel index.py requirements.txt sign.py static templates
(env) metens@instance-20241104-185212:~/cs430-src/05_aws_dynamodb$ python3 application.py
* Serving Flask app 'application'
* Debug mode: on
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on all addresses (0.0.0.0)
* Running on http://127.0.0.1:5001
* Running on http://10.138.0.19:5001
Press CTRL+C to quit
* Restarting with stat
* Debugger is active!
* Debugger PIN: 111-110-944
10.138.0.19 - - [04/Nov/2024 19:36:38] "GET / HTTP/1.1" 200 -
10.138.0.19 - - [04/Nov/2024 19:36:48] "GET /sign/ HTTP/1.1" 200 -
10.138.0.19 - - [04/Nov/2024 19:37:27] "POST /sign/ HTTP/1.1" 302 -
10.138.0.19 - - [04/Nov/2024 19:37:36] "GET / HTTP/1.1" 200 -
```

Here is used curl to access the running application to create a post:

```
metens@instance-20241104-185212:~/cs430-src/05_aws_dynamodb$ ls
Dockerfile  __pycache__ application.py env gbmodel index.py requirements.txt sign.py static templates
metens@instance-20241104-185212:~/cs430-src/05_aws_dynamodb$ curl http://10.138.0.19:5001/
<!doctype html>
<html>
<title>My Visitors</title>
<link rel=stylesheet type=text/css href="/static/style.css">
<div class=page>

    <h2>Guestbook</h2>

    <h3>Sign <a href="/sign/">here</a></h3>
    <h3>Entries</h3>

    <p class=entry>
        &#34;Nathan Metens&#34; &lt;metens@pdx.edu>;
        <br>signed on 2024-11-04 19:35:42.589998<br>
        Hello DynamoDB
    </p>

</div>
</html>metens@instance-20241104-185212:~/cs430-src/05_aws_dynamodb$ curl http://10.138.0.19:5001/sign/
<!doctype html>
<html>
<title>My Visitors</title>
<link rel=stylesheet type=text/css href="/static/style.css">
<div class=page>

    <h2>Sign Guestbook</h2>
    <form action="/sign/" method=post>
        <p class="heading">Name: <input type=text name=name></p>
        <p class="heading">Email: <input type=text name=email></p>
        <p class="heading">Message:
        <textarea rows=5 cols=50 name=message></textarea></p>
        <p><input type=submit value=Sign></p>
    </form>

</div>
```

```

metens@instance-20241104-185212:~/cs430-src/05_aws_dynamodb$ curl -X POST http://10.138.0.19:5001/sign/ \
> -d 'name="Nathan Metens"' \
> -d 'email=metens@pdx.edu' \
> -d 'message=Hello DynamoDB'
<!doctype html>
<html lang=en>
<title>Redirecting...</title>
<h1>Redirecting...</h1>
<p>You should be redirected automatically to the target URL: <a href="/"></a>. If not, click the link.
metens@instance-20241104-185212:~/cs430-src/05_aws_dynamodb$ curl http://10.138.0.19:5001/
<!doctype html>
<html>
<title>My Visitors</title>
<link rel=stylesheet type=text/css href="/static/style.css">
<div class=page>

    <h2>Guestbook</h2>

    <h3>Sign <a href="/sign/">here</a></h3>
    <h3>Entries</h3>

    <p class=entry>
        &#34;Nathan Metens&#34; &lt;metens@pdx.edu&gt;
        <br>signed on 2024-11-04 19:35:42.589998<br>
        Hello DynamoDB
    </p>

    <p class=entry>
        &#34;Nathan Metens&#34; &lt;metens@pdx.edu&gt;
        <br>signed on 2024-11-04 19:37:26.954167<br>
        Hello DynamoDB
    </p>

</div>
</html>metens@instance-20241104-185212:~/cs430-src/05_aws_dynamodb$ █

```

7. Run the application

Again, RDP doesn't work no matter what I try so I cannot access the guestbook on a browser or through Windows app. Here is the guestbook over curl:

```

G4Ld7atM= --env PORT=80 -p 8001:80 aws_gb
[2024-11-05 01:09:57 +0000] [1] [INFO] Starting gunicorn 23.0.0
[2024-11-05 01:09:57 +0000] [1] [INFO] Listening at: http://0.0.0.0:80 (1)
[2024-11-05 01:09:57 +0000] [1] [INFO] Using worker: gthread
[2024-11-05 01:09:57 +0000] [7] [INFO] Booting worker with pid: 7
█

```

I used port 8001 because I was getting error messages saying that port 8000 was already occupied.

```
metens@course-vm:~$ curl http://localhost:8001
<!doctype html>
<html>
<title>My Visitors</title>
<link rel=stylesheet type=text/css href="/static/style.css">
<div class=page>

    <h2>Guestbook</h2>

    <h3>Sign <a href="/sign/">here</a></h3>
    <h3>Entries</h3>

    <p class=entry>
        &#34;Nathan Metens&#34; &lt;metens@pdx.edu>;
        <br>signed on 2024-11-04 19:35:42.589998<br>
        Hello DynamoDB
    </p>

    <p class=entry>
        &#34;Nathan Metens&#34; &lt;metens@pdx.edu>;
        <br>signed on 2024-11-04 19:37:26.954167<br>
        Hello DynamoDB
    </p>

    <p class=entry>
        &#34;Nathan Metens&#34; &lt;metens@pdx.edu>;
        <br>signed on 2024-11-04 19:48:10.936737<br>
        Hello Dynamo
    </p>

    <p class=entry>
        Nathan Metens &lt;metens@pdx.edu>;
        <br>signed on 2024-11-05 00:03:08.300858<br>
        Hello Docker DynamoDB
    </p>

</div>
```

```

</html>metens@course-url http://localhost:8001/sign/
<!doctype html>
<html>
<title>My Visitors</title>
<link rel=stylesheet type=text/css href="/static/style.css">
<div class=page>

    <h2>Sign Guestbook</h2>
    <form action="/sign/" method=post>
        <p class="heading">Name: <input type=text name=name></p>
        <p class="heading">Email: <input type=text name=email></p>
        <p class="heading">Message:
        <textarea rows=5 cols=50 name=message></textarea></p>
        <p><input type=submit value=Sign></p>
    </form>

</div>
</html>metens@course curl -X POST http://localhost:8000/sign/ \sign/ \
-d "name=Nathan Metens&email=metens@pdx.edu&message=Hello Docker DynamoDB"
<!doctype html>
<html lang=en>
<title>Redirecting...</title>
<h1>Redirecting...</h1>
<p>You should be redirected automatically to the target URL: <a href="/"></a>. If not, click the link.

```

```

metens@course-vm:~$ curl http://localhost:8001/
<!doctype html>
<html>
<title>My Visitors</title>
<link rel=stylesheet type=text/css href="/static/style.css">
<div class=page>

    <h2>Guestbook</h2>

    <h3>Sign <a href="/sign/">here</a></h3>
    <h3>Entries</h3>

    <p class=entry>
        &#34;Nathan Metens&#34; &lt;metens@pdx.edu>;
        <br>signed on 2024-11-04 19:35:42.589998<br>
        Hello DynamoDB
    </p>

    <p class=entry>
        &#34;Nathan Metens&#34; &lt;metens@pdx.edu>;
        <br>signed on 2024-11-04 19:37:26.954167<br>
        Hello DynamoDB
    </p>

    <p class=entry>
        &#34;Nathan Metens&#34; &lt;metens@pdx.edu>;
        <br>signed on 2024-11-04 19:48:10.936737<br>
        Hello Dynamo
    </p>

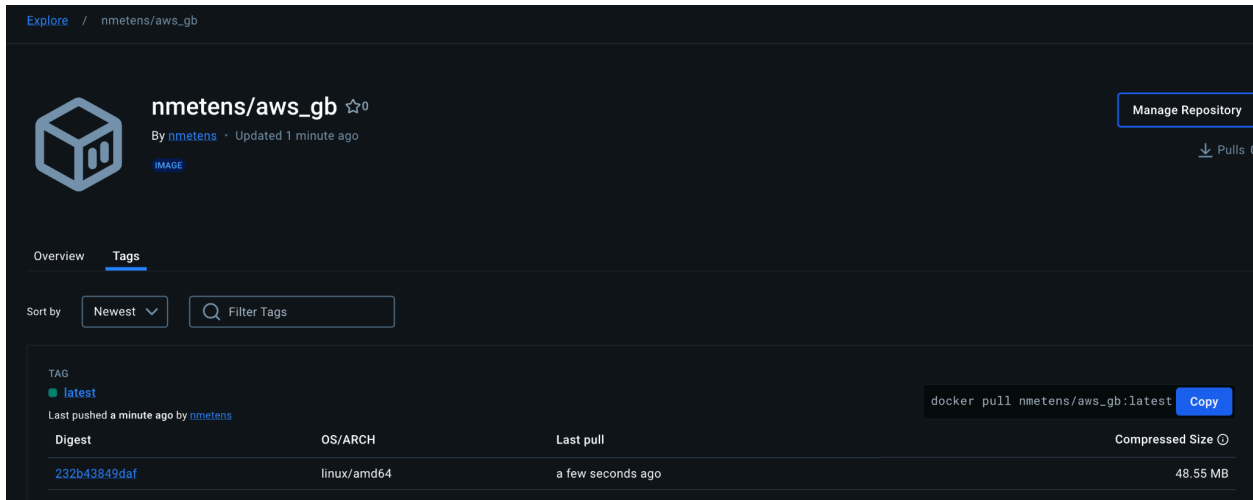
    <p class=entry>
        Nathan Metens &lt;metens@pdx.edu>;
        <br>signed on 2024-11-05 00:03:08.300858<br>
        Hello Docker DynamoDB
    </p>

    <p class=entry>
        Nathan Metens &lt;metens@pdx.edu>;
        <br>signed on 2024-11-05 01:11:55.896432<br>
        Hello Docker DynamoDB
    </p>

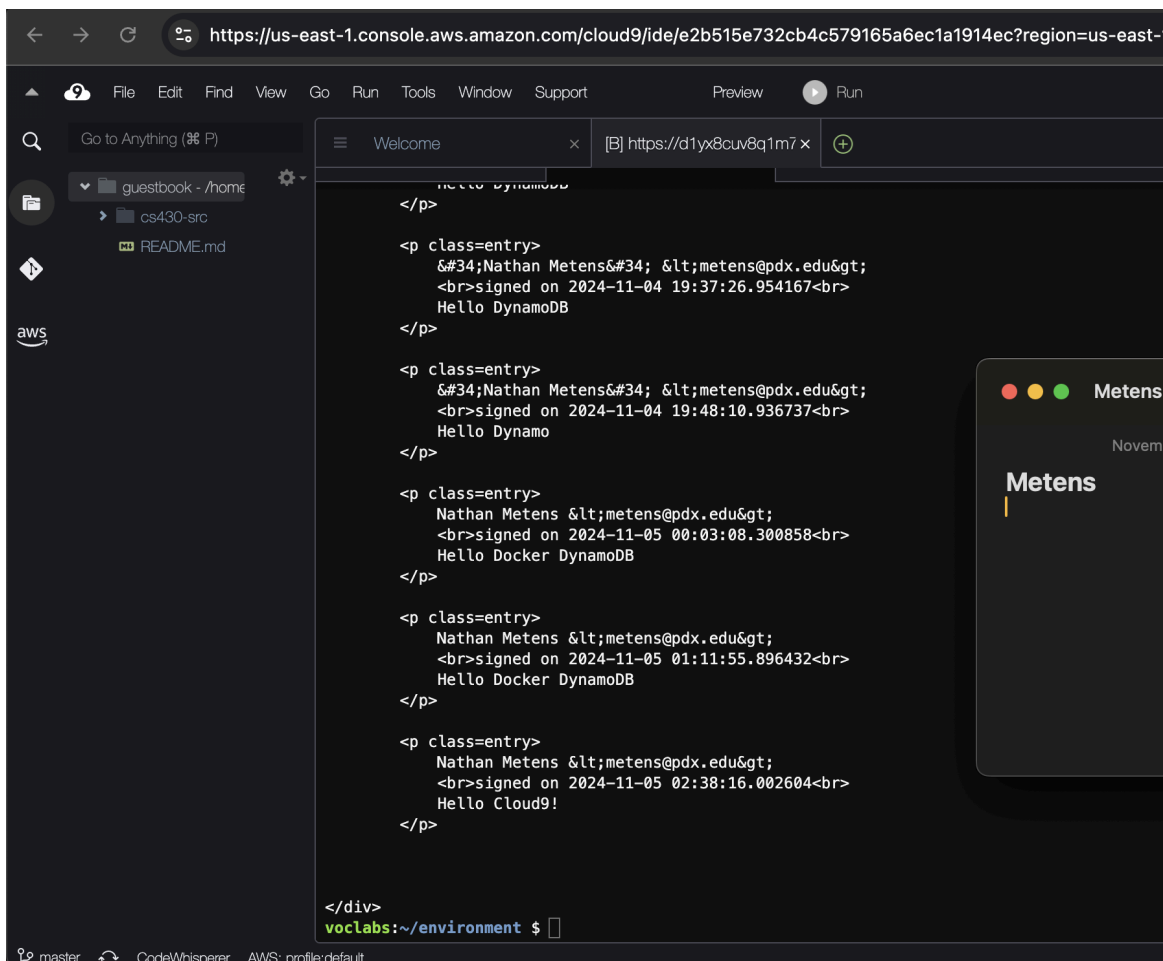
</div>
metens@course-vm:~$ █

```

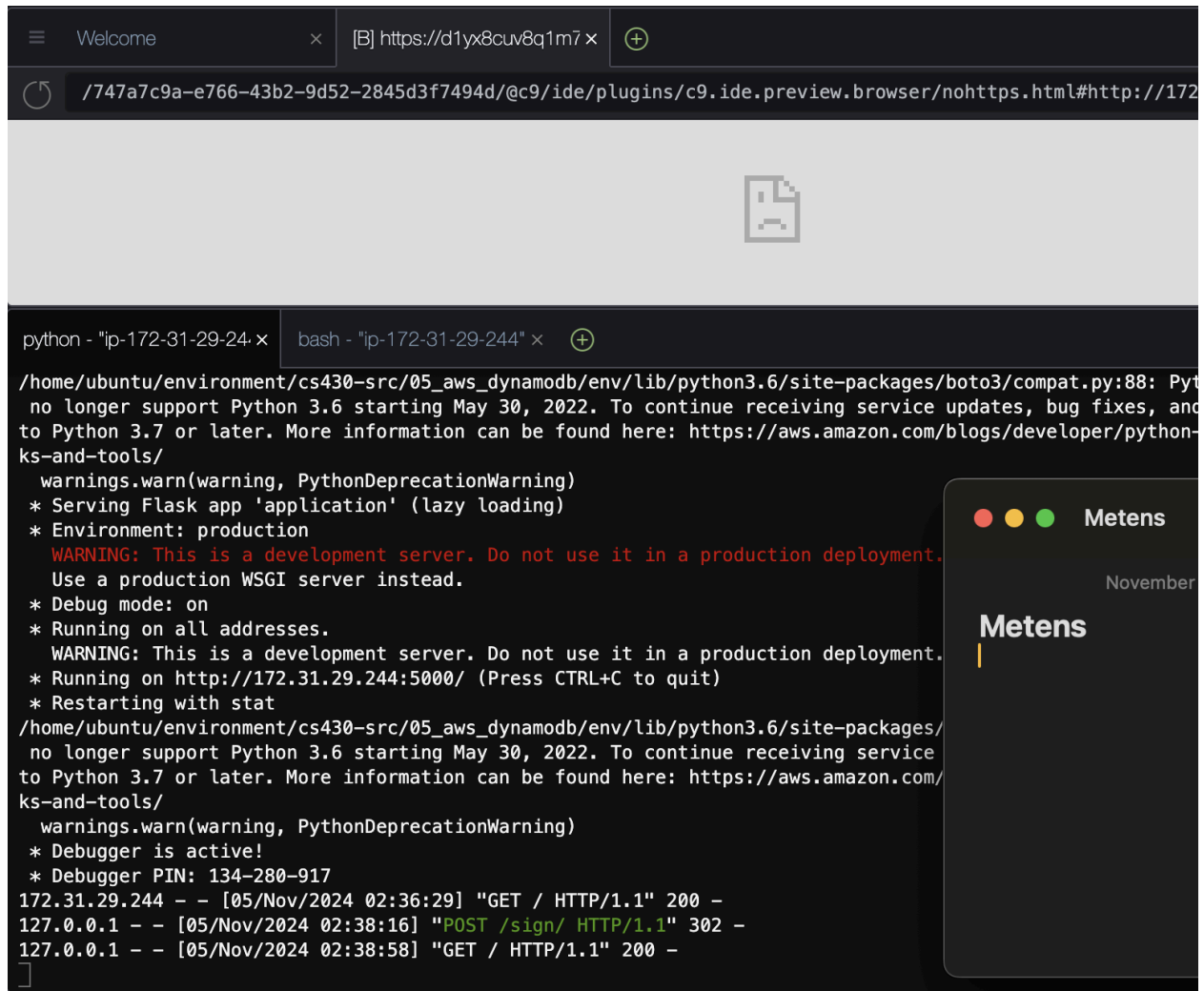
8. Push the container image



11. Run the application

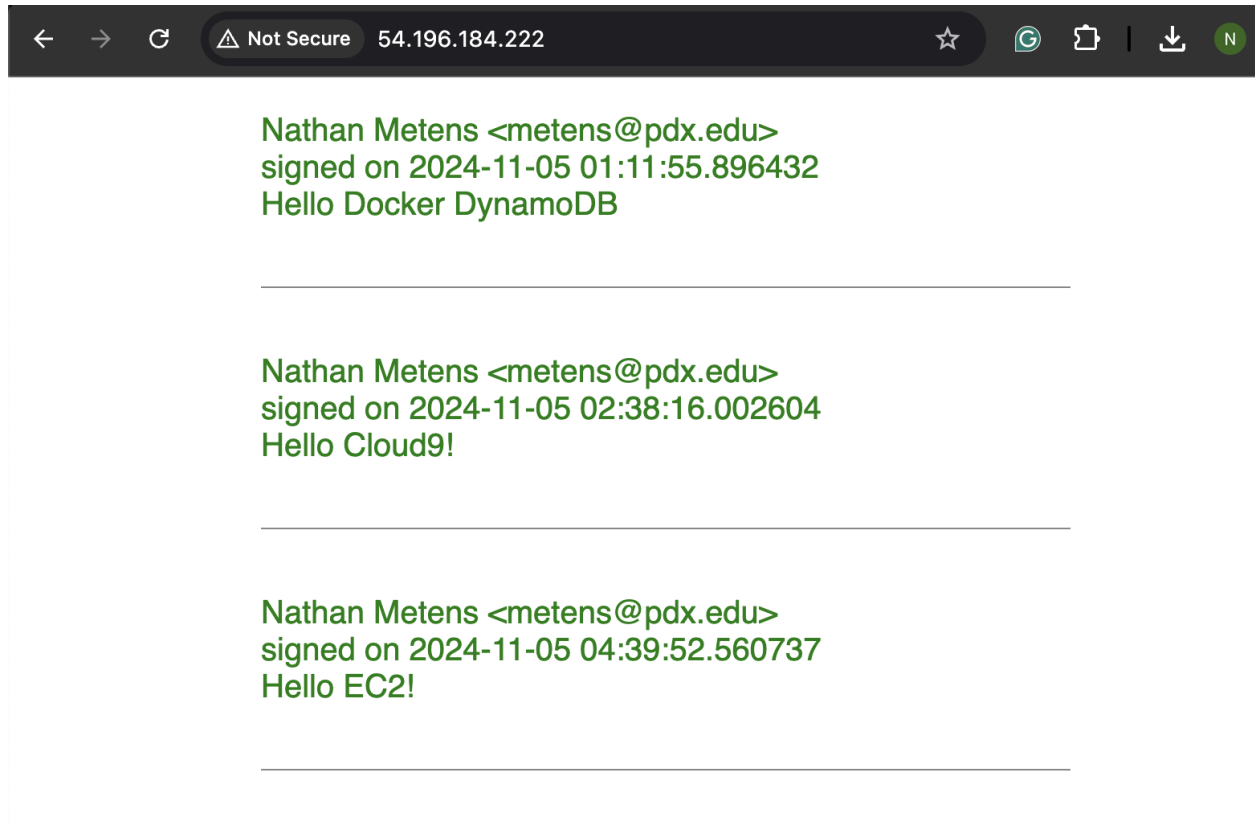


Again, when I clicked the <http://172.31.29.244.5000/> link from flask, the page was not accessible. So I curled as before to access the notebook.



```
python - "ip-172-31-29-24. x bash - "ip-172-31-29-244" x +
/home/ubuntu/environment/cs430-src/05_aws_dynamodb/env/lib/python3.6/site-packages/boto3/compat.py:88: Pyt
no longer support Python 3.6 starting May 30, 2022. To continue receiving service updates, bug fixes, and
to Python 3.7 or later. More information can be found here: https://aws.amazon.com/blogs/developer/python-
ks-and-tools/
  warnings.warn(warning, PythonDeprecationWarning)
* Serving Flask app 'application' (lazy loading)
* Environment: production
  WARNING: This is a development server. Do not use it in a production deployment.
  Use a production WSGI server instead.
* Debug mode: on
* Running on all addresses.
  WARNING: This is a development server. Do not use it in a production deployment.
* Running on http://172.31.29.244:5000/ (Press CTRL+C to quit)
* Restarting with stat
/home/ubuntu/environment/cs430-src/05_aws_dynamodb/env/lib/python3.6/site-packages/
no longer support Python 3.6 starting May 30, 2022. To continue receiving service
to Python 3.7 or later. More information can be found here: https://aws.amazon.com/
ks-and-tools/
  warnings.warn(warning, PythonDeprecationWarning)
* Debugger is active!
* Debugger PIN: 134-280-917
172.31.29.244 - - [05/Nov/2024 02:36:29] "GET / HTTP/1.1" 200 -
127.0.0.1 - - [05/Nov/2024 02:38:16] "POST /sign/ HTTP/1.1" 302 -
127.0.0.1 - - [05/Nov/2024 02:38:58] "GET / HTTP/1.1" 200 -
```

15. Visit the application



16. View the database

Select a table or index

Table - guestbook ▼

Select attribute projection

All attributes ▼

► Filters

Run

Reset

✓ Completed. Read capacity units consumed: 0.5

×

Items returned (7)

↺

Actions ▼

Create item

<

1

>

⚙

✂

05.2g: Cloud Datastore Guestbook

7. Run the application

```
metens@course-vm:~/cs430-src/05_gcp_datastore$ curl http://10.138.0.2:5000/
<!doctype html>
<html>
<title>My Visitors</title>
<link rel=stylesheet type=text/css href="/static/style.css">
<div class=page>

    <h2>Guestbook</h2>

    <h3>Sign <a href="/sign/">here</a></h3>
    <h3>Entries</h3>

    <p class=entry>
        Nathan Metens &lt;metens@pdx.edu>;
        <br>signed on 2024-11-05 06:07:00.327416+00:00<br>
        Hello Datastore
    </p>

</div>
</html>metens@course-vm:~/cs430-src/05_gcp_datastore$
```

9. Run the application

Nothing is working. I've worked on this lab for at least 9 hours today. I give up, for now. I'll try again later and put it in the late folder.

```

File "<frozen importlib._bootstrap>", line 1206, in _gcd_import
File "<frozen importlib._bootstrap>", line 1178, in _find_and_load
File "<frozen importlib._bootstrap>", line 1149, in _find_and_load_unlocked
File "<frozen importlib._bootstrap>", line 690, in _load_unlocked
File "<frozen importlib._bootstrap_external>", line 940, in exec_module
File "<frozen importlib._bootstrap>", line 241, in _call_with_frames_removed
File "/app/app.py", line 6, in <module>
    from index import Index
File "/app/index.py", line 3, in <module>
    import gbmodel
File "/app/gbmodel/__init__.py", line 17, in <module>
    appmodel = model()
                ^^^^^^^
File "/app/gbmodel/model_datastore.py", line 39, in __init__
    self.client = datastore.Client('cloud-metens')
                ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
File "/env/lib/python3.11/site-packages/google/cloud/datastore/client.py", line 324, in __init__
    super(Client, self).__init__(
File "/env/lib/python3.11/site-packages/google/cloud/client/__init__.py", line 321, in __init__
    Client.__init__(
File "/env/lib/python3.11/site-packages/google/cloud/client/__init__.py", line 178, in __init__
    credentials, _ = google.auth.default(scopes=scopes)
                    ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
File "/env/lib/python3.11/site-packages/google/auth/_default.py", line 659, in default
    credentials, project_id = checker()
                             ^^^^^^^^^
File "/env/lib/python3.11/site-packages/google/auth/_default.py", line 652, in <lambda>
    lambda: _get_explicit_environ_credentials(quota_project_id=quota_project_id),
            ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
File "/env/lib/python3.11/site-packages/google/auth/_default.py", line 271, in _get_explicit_environ_credentials
    credentials, project_id = load_credentials_from_file(
                             ^^^^^^^^^^^^^^^^^^^^^^^^^
File "/env/lib/python3.11/site-packages/google/auth/_default.py", line 118, in load_credentials_from_file
    with io.open(filename, "r") as file_obj:
         ^^^^^^^^^^^^^^^^^^^^^
IsADirectoryError: [Errno 21] Is a directory: '/tmp/guestbook-key-on-container.json'
[2024-11-05 07:03:21 +0000] [7] [INFO] Worker exiting (pid: 7)
[2024-11-05 07:03:21 +0000] [1] [ERROR] Worker (pid:7) exited with code 3
[2024-11-05 07:03:21 +0000] [1] [ERROR] Shutting down: Master
[2024-11-05 07:03:21 +0000] [1] [ERROR] Reason: Worker failed to boot.
(env) metens@course-vm:~/cs430-src/05_gcp_datastore$

```