AHMAD ZAFAR AGAH CS586 Week6

- 6.3g.2. Prepare a container image
  - ● Take a screenshot that includes the output of the command and the time it took to execute.
  - ● Take a screenshot showing the container image and its virtual size
- 6.3g.4. View the Guestbook
  - ● Take a screenshot that includes the URL Cloud Run has created for your site.
  - ● What port do container instances listen on?
  - ● What are the maximum number of instances Cloud Run will autoscale up to for your service?

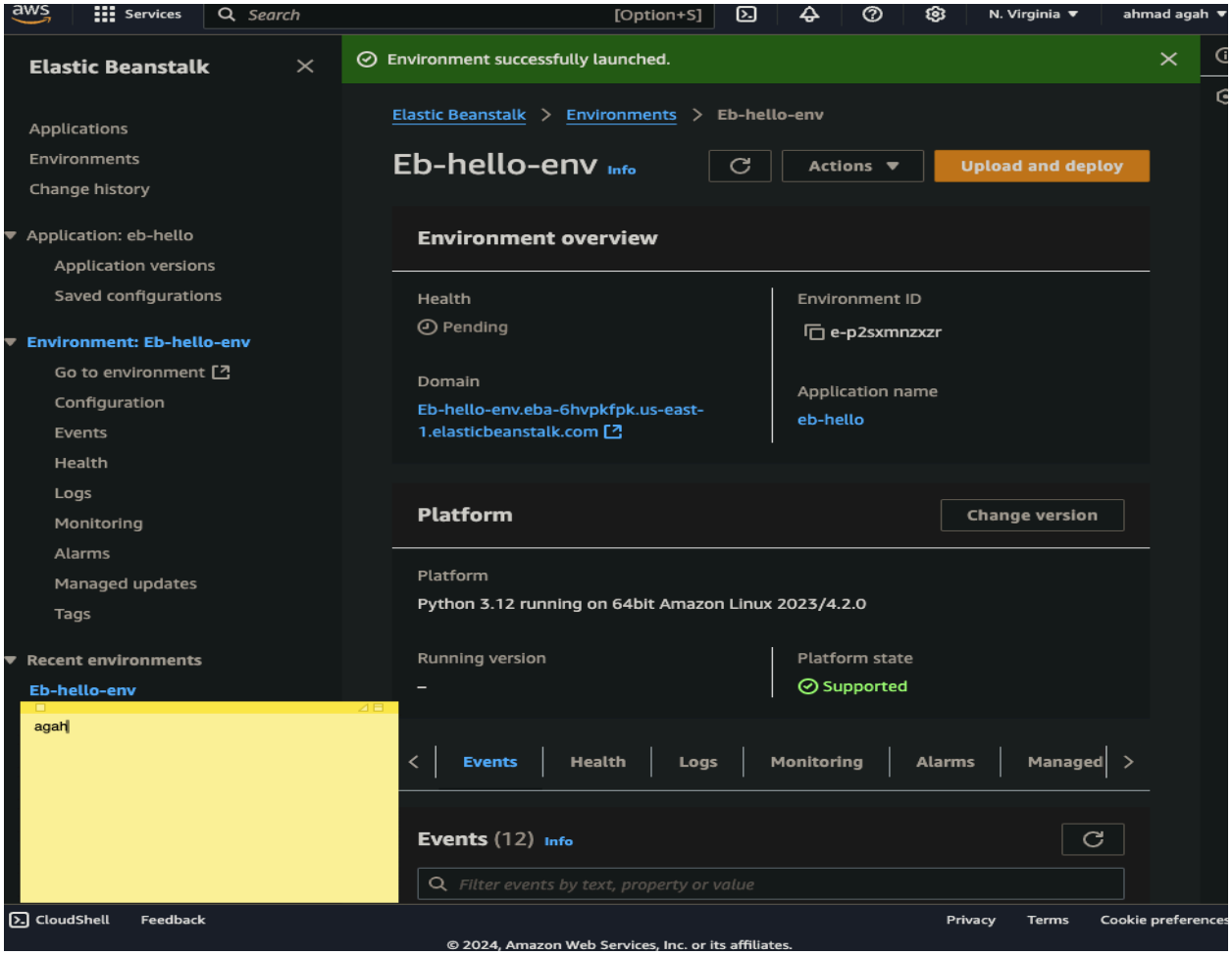
06.4g: Cloud Functions, PubSub

- 6.4g.4. -
  - ● After downloading the file from the bucket, where is it stored?
  - ● What class in the ImageMagick package is used to do the blurring of the file?
  - ● What lines of code perform the blurring of the image and its storage back into the filesystem?
- 6.4g.7. Test function
  - ● Take a screenshot of the blurred image in the output bucket for your lab notebook
  - ● Include a screenshot of the output logs that show that the above image was blurred.
- 6.4g11. PubSub via CLI
  - ● Why are there no items returned?
- 6.4g.12. -
  - Perform in Cloud Shell
    - ● What is the messageId of the published message?
  - Perform in VM
    - ● Take a screenshot of the output of the successful pull that includes the message and its messageId.
- 6.4g.15. Test programs and clean up
  - ● Take a screenshot showing the messageIds and messages sent
  - ● Take a screenshot showing the same messageIds and messages received

06.1a: EB Guestbook

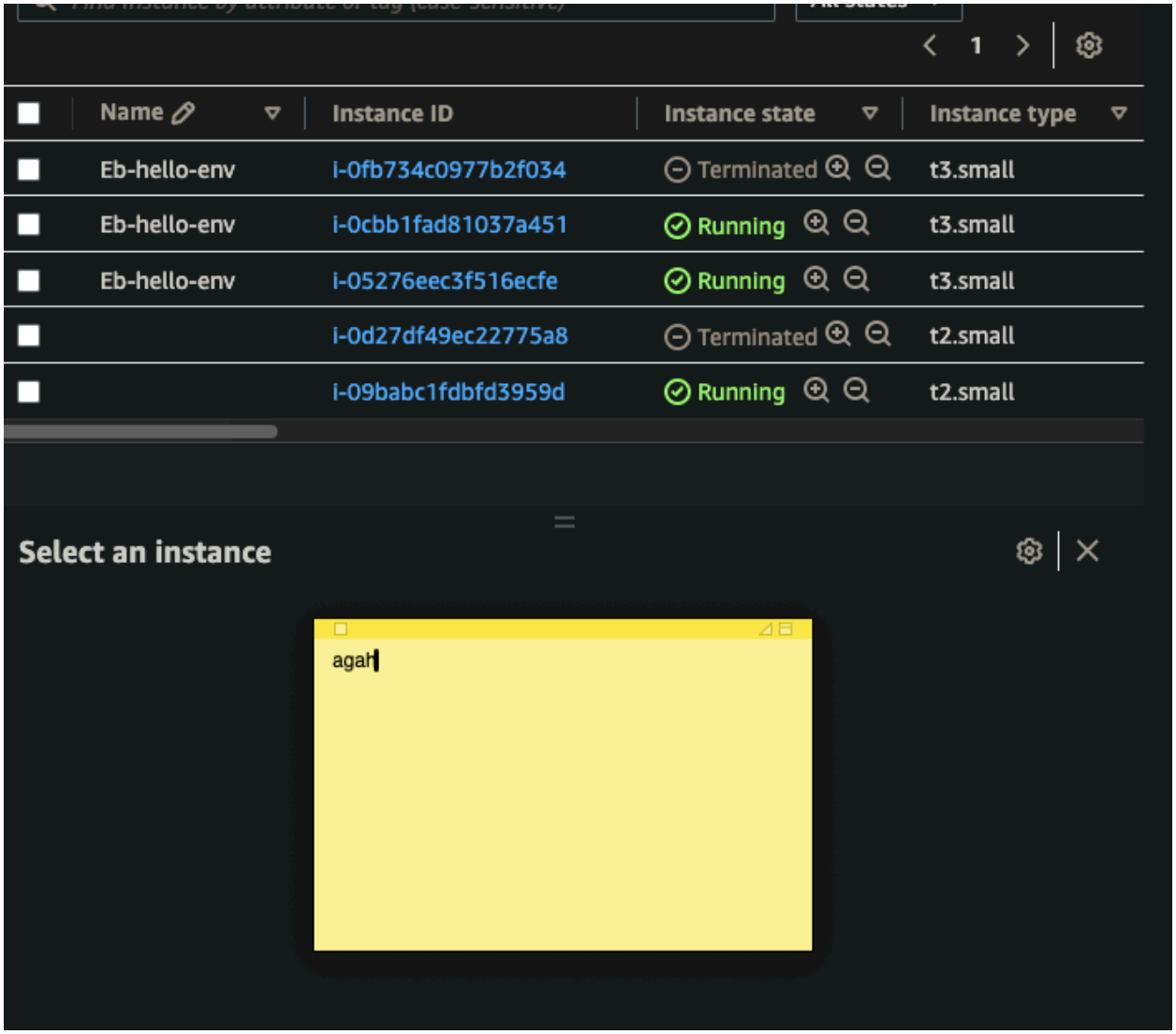
6.1a.3. Running the application

- Take a screenshot showing it has been brought up successfully



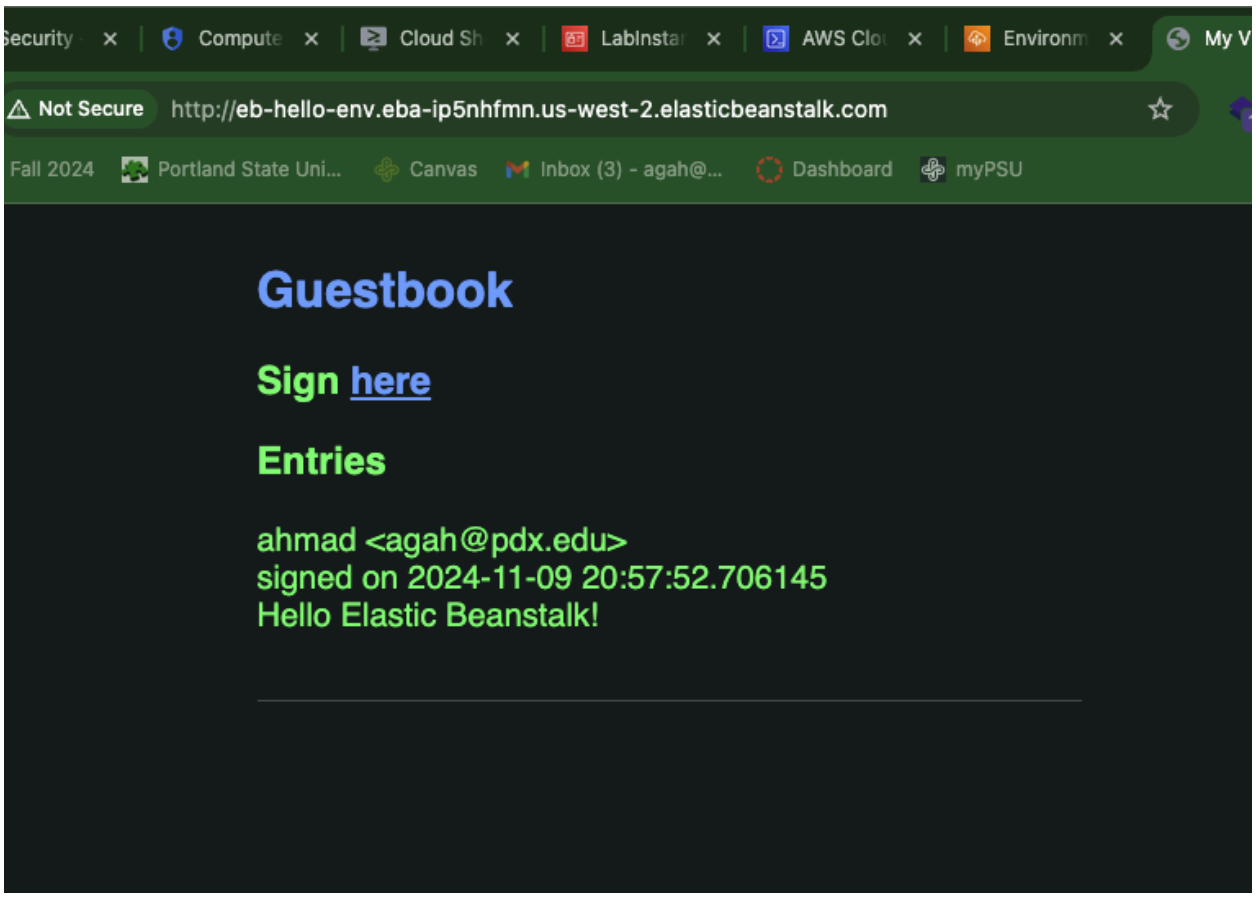
6.1a.4. Handling failures seamlessly

- Take a screenshot of the replacement VM being started.

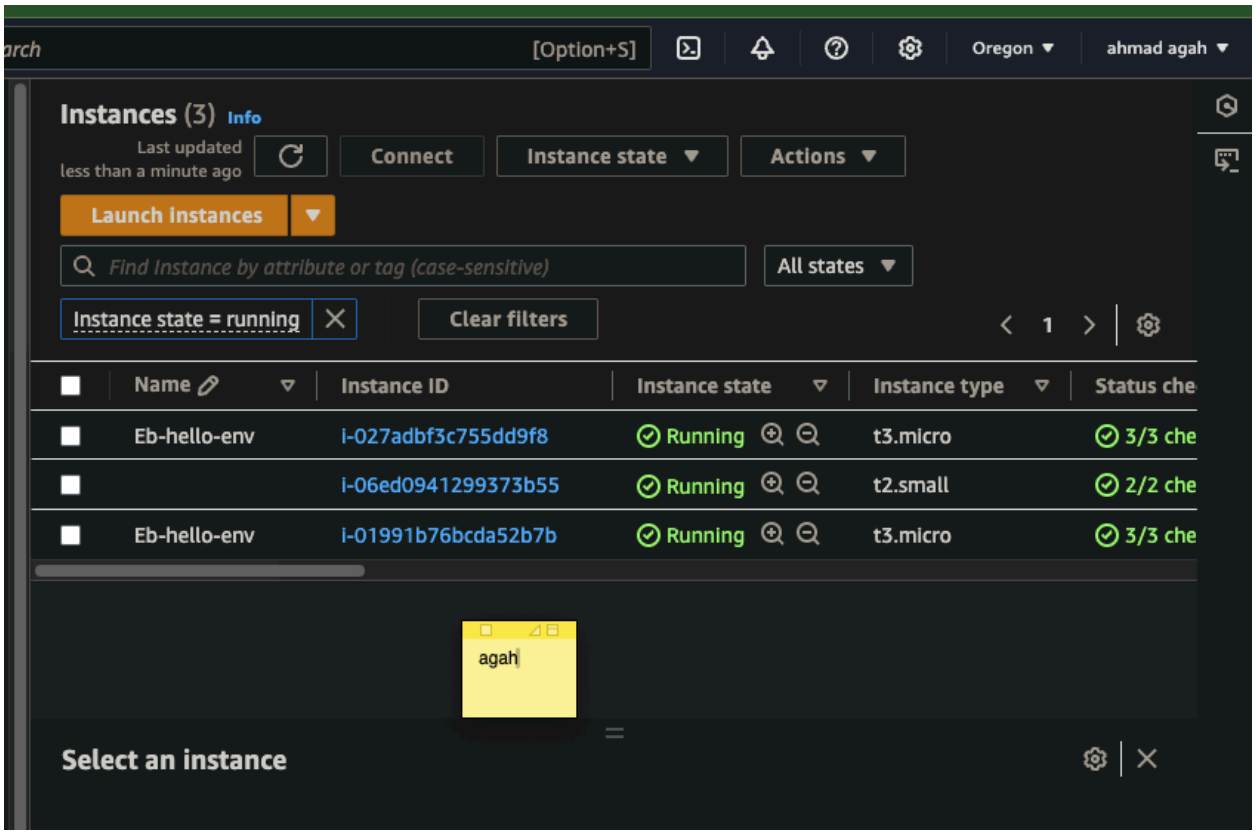


6.1a.7. Deploying the Guestbook

- Take a screenshot of the Guestbook including the URL with the entry in it.



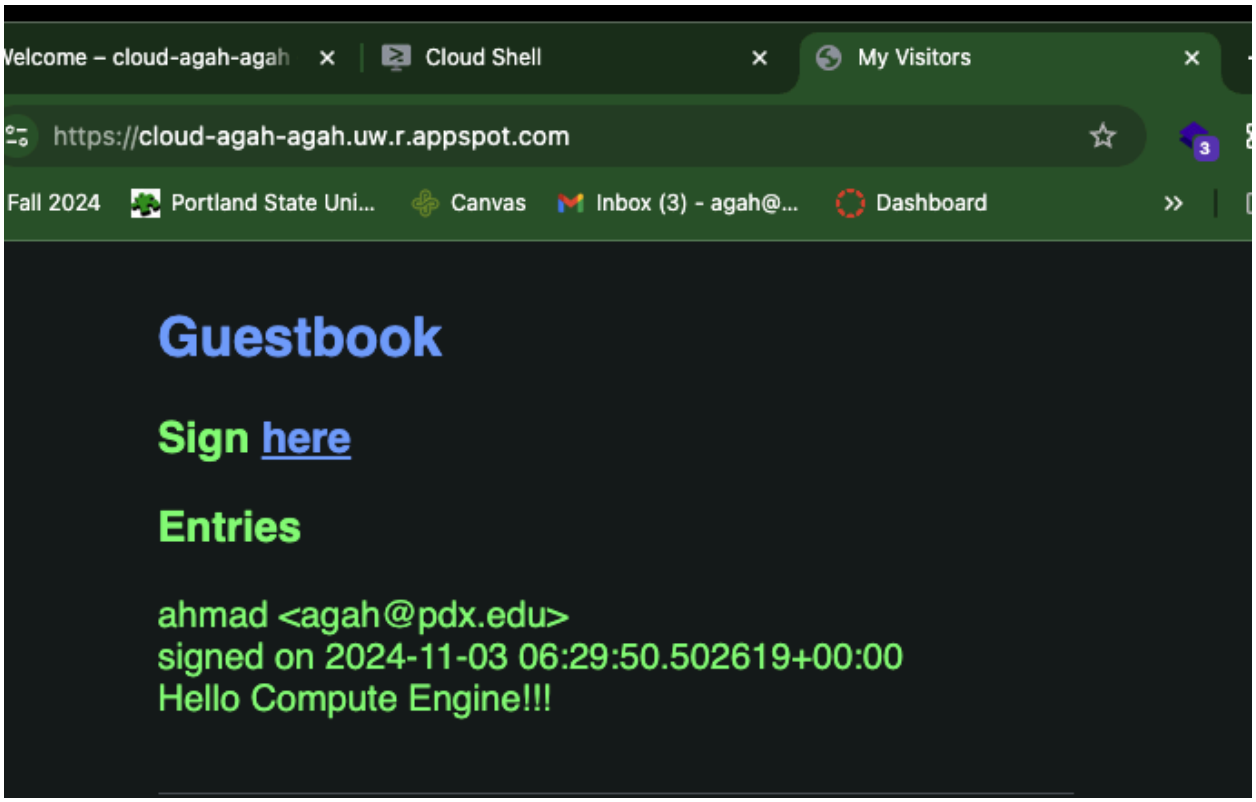
- Take a screenshot of them.



06.1g: App Engine Guestbook

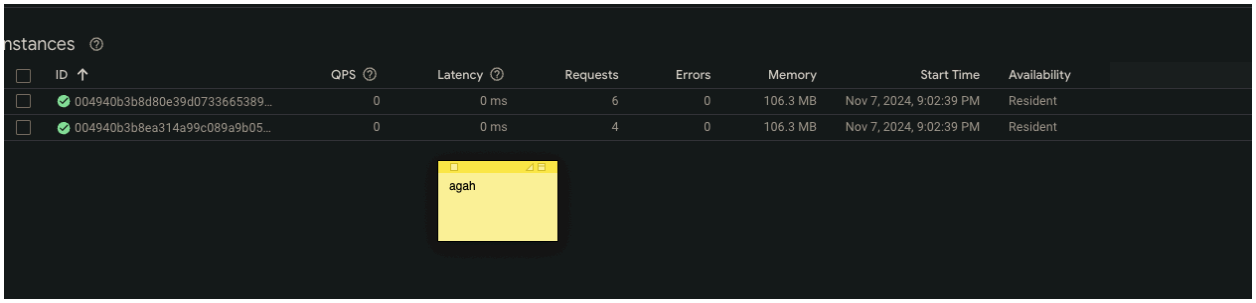
6.1g.3. Deploying the Guestbook

- Take a screenshot of the output that includes the URL in the address bar for your lab notebook.



4. Handling failures seamlessly

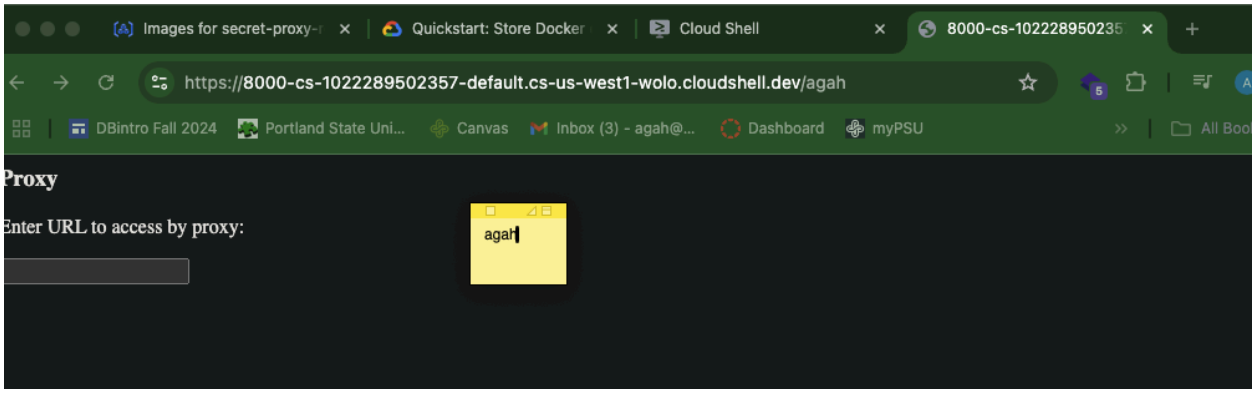
- Take a screenshot of them.



06.2g: Cloud Run, Secret Manager (Web proxy)

6.2g.8. Setup secret proxy

- Take a screenshot of the proxy and its results including the URL containing your OdinID

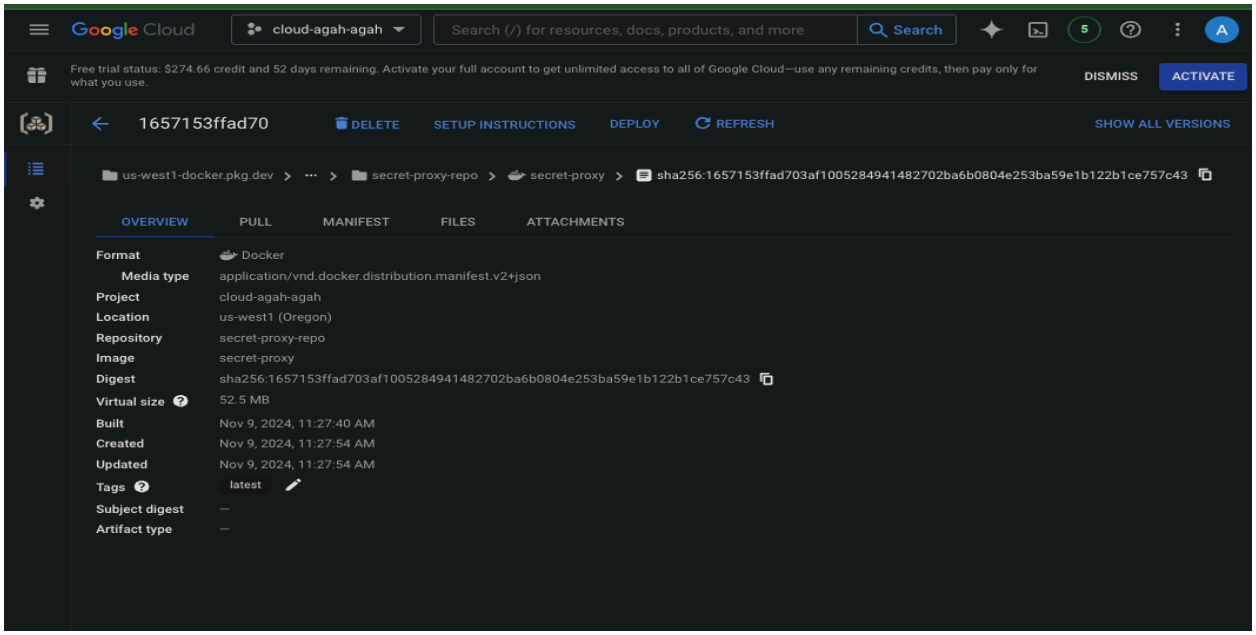


- What is the security advantage of passing in the secret proxy route as an environment variable?

Using environment variables for the secret proxy route enhances security by keeping sensitive information out of the source code, reducing the risk of exposure in version control. It allows dynamic configuration across different environments without code changes and hides sensitive data from end-users, minimizing the attack surface.

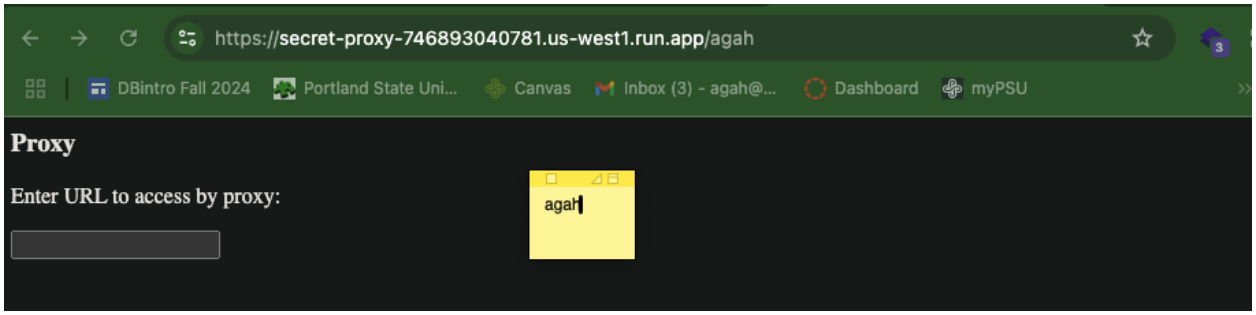
6.2g.10. Cloud Build

- Take a screenshot of the image in the registry that shows the size of the container for your lab notebook.

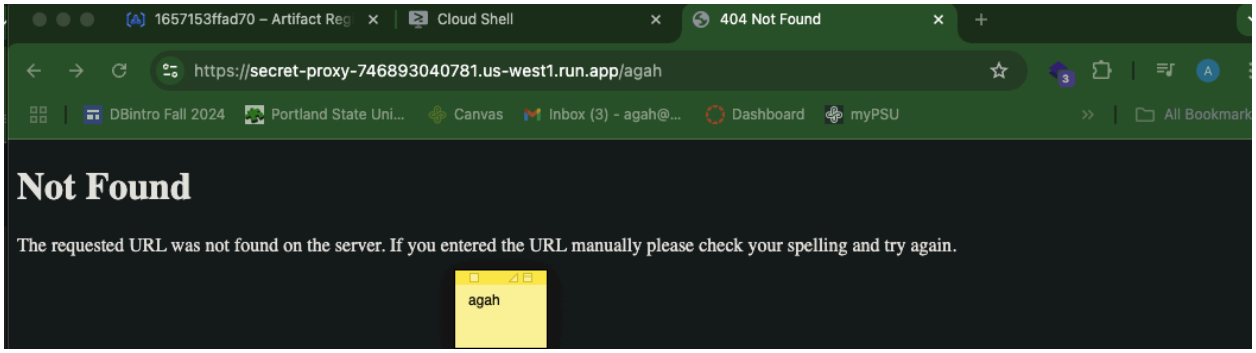


6.2g11. Deploy to Cloud Run

- Take a screenshot of it that includes the proxy URL for your lab notebook.

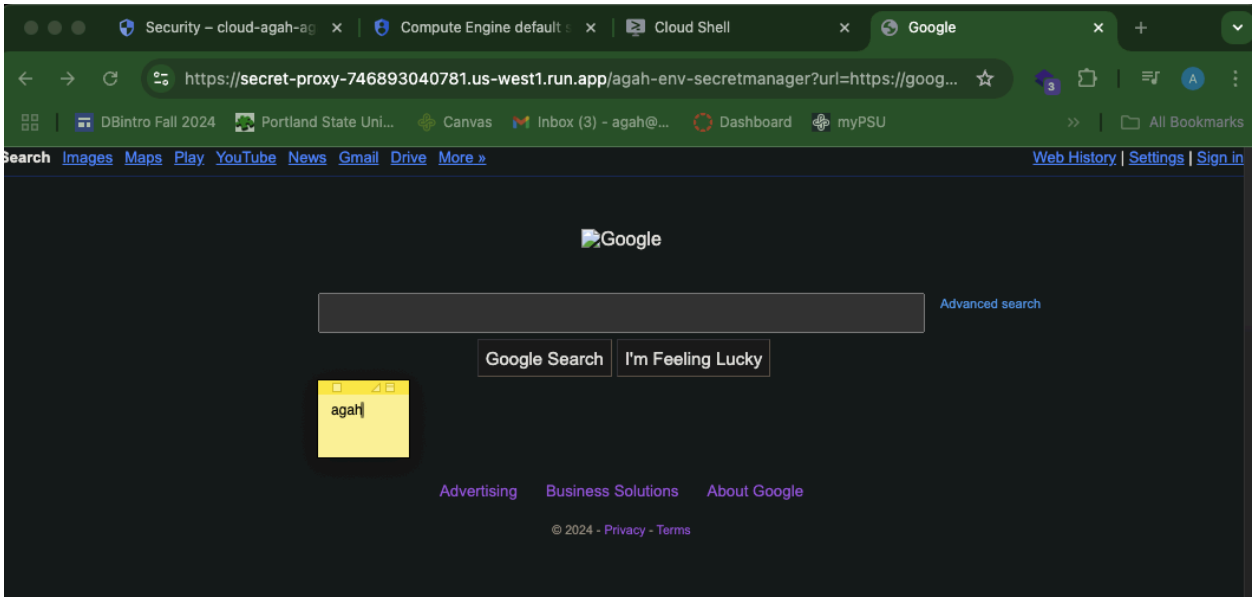


- Take a screenshot of the error page that includes the proxy URL for your lab notebook.



6.2g.13. Deploy to Cloud Run with Secret Manager

- Take a screenshot of it that includes the proxy URL for your lab notebook.



- Identify the vulnerability in your lab notebook that Google has prevented.

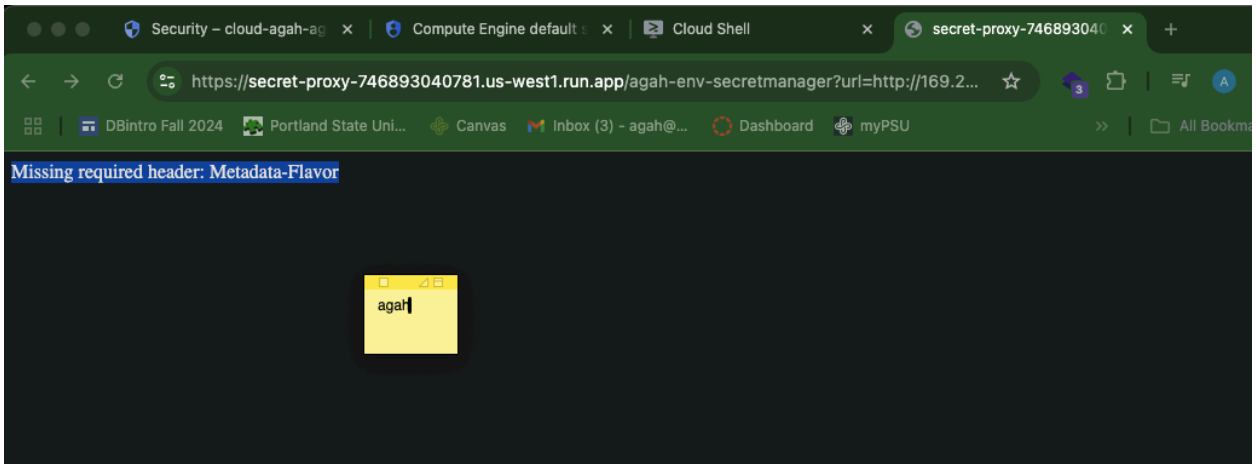
Vulnerability Prevented: Server-Side Request Forgery (SSRF)

Google Cloud prevents Server-Side Request Forgery (SSRF) attacks by requiring the `Metadata-Flavor: Google` header for any request to its metadata server (`http://169.254.169.254/computeMetadata`). This header acts as a security measure, ensuring that only legitimate requests access metadata information.

Impact of SSRF:

- Unauthorized access to internal services or metadata.
- Potential exposure of sensitive data, such as instance credentials.

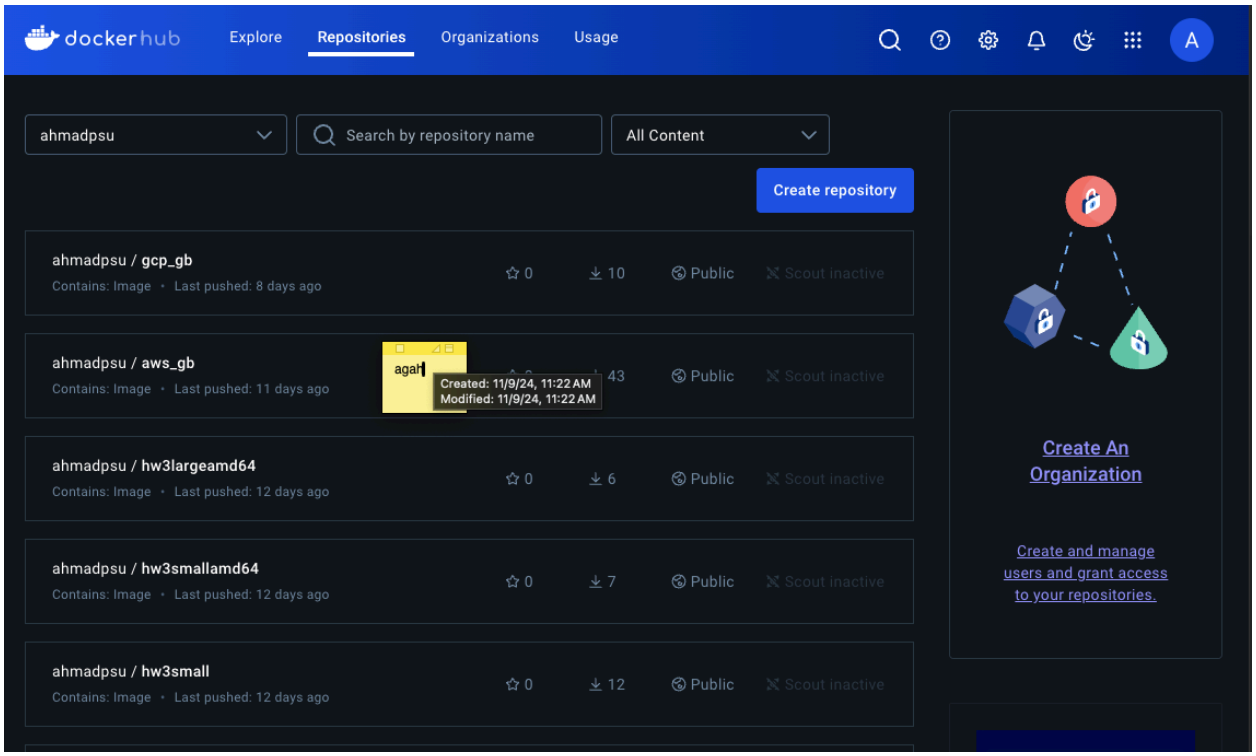
Google's Prevention Mechanism: By rejecting requests without the `Metadata-Flavor` header, Google blocks unauthorized attempts to access the metadata server, protecting cloud environments from credential theft and internal service exploitation.



06.3a: ECS Guestbook

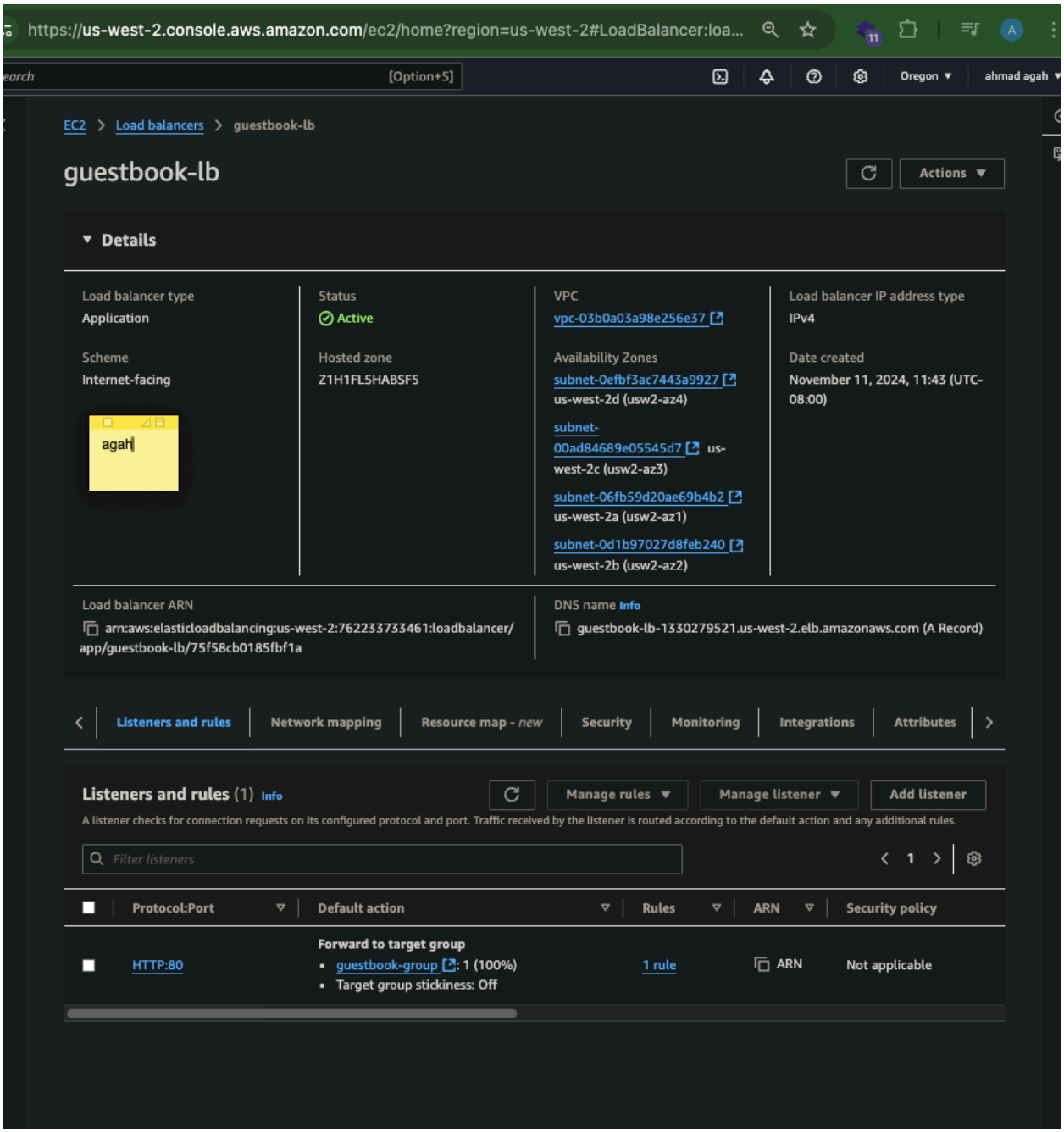
6.3a.1. Prepare a container image

Show that your image was uploaded to your account on Docker Hub.



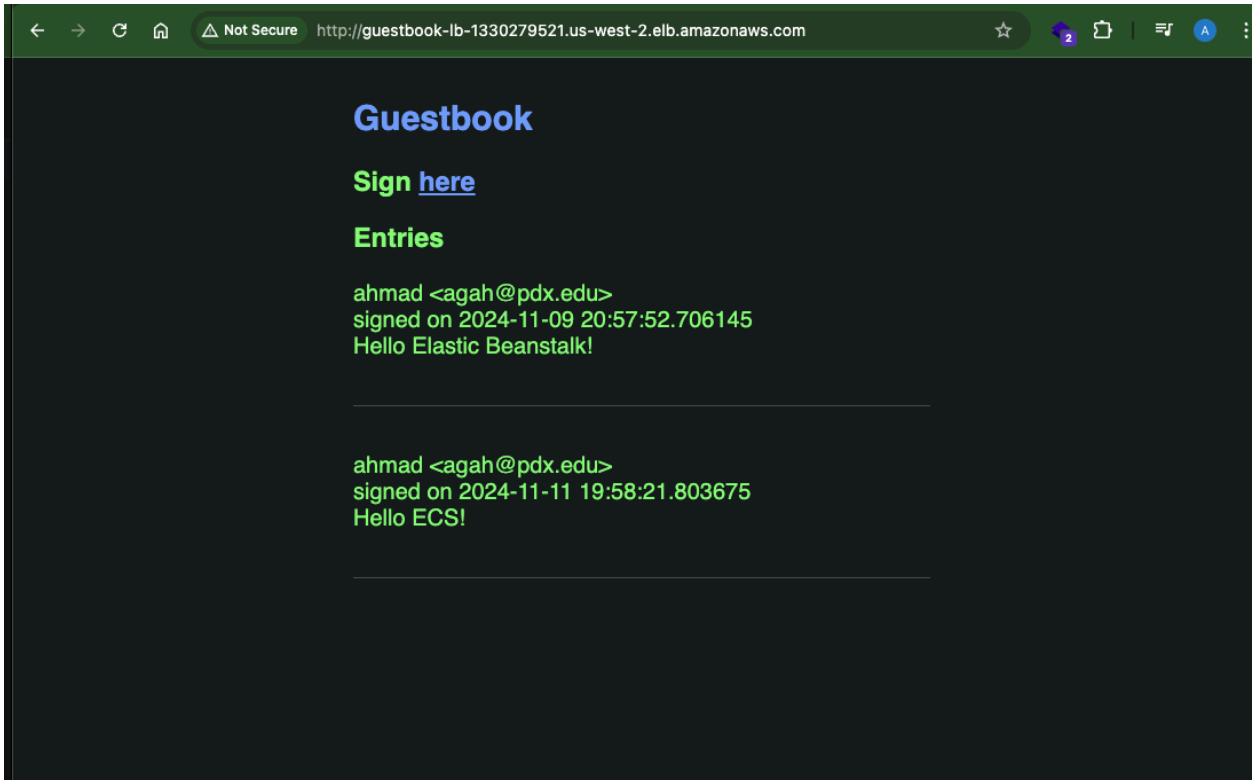
6.3a.5. Examine the service

- Take a screenshot of the DNS name of the guestbook-lb load balancer for your lab notebook



6.3a.6. Visit the site

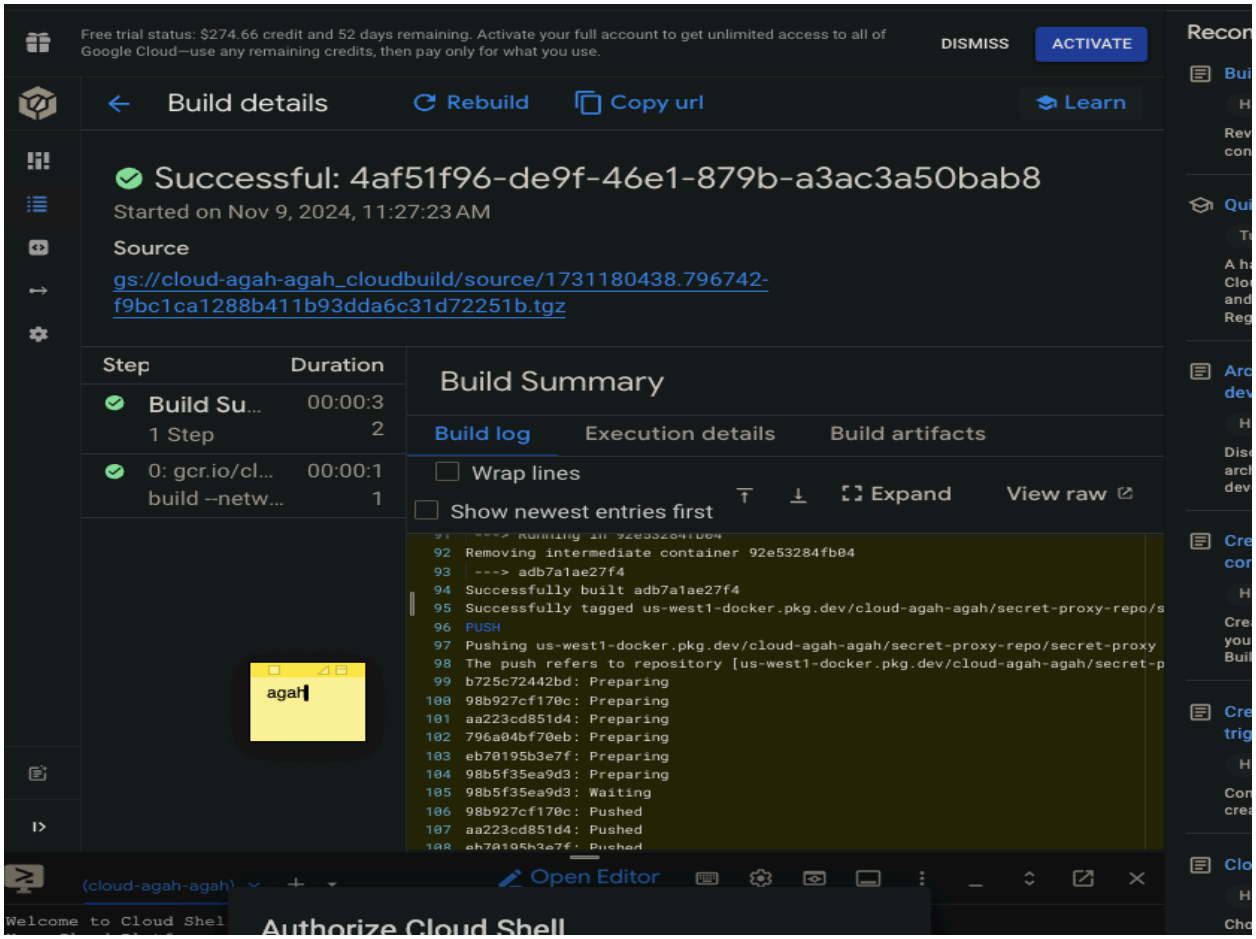
- Take a screenshot of the Guestbook app running in a browser that includes the DNS name of the site.



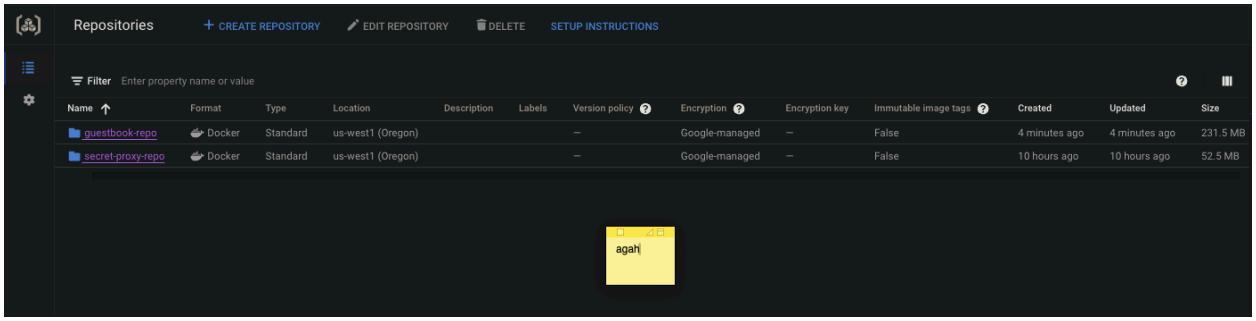
06.3g: Cloud Run Guestbook

6.3g.2. Prepare a container image

- Take a screenshot that includes the output of the command and the time it took to execute.

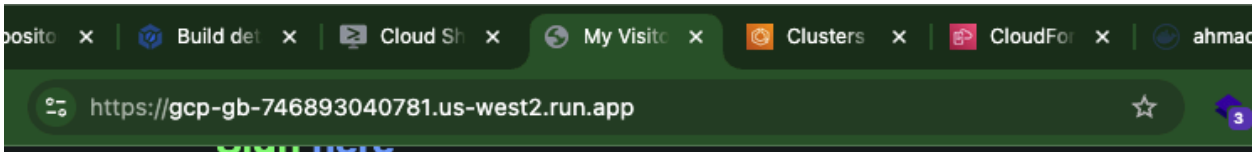


- Take a screenshot showing the container image and its virtual size



6.3g.4. View the Guestbook

- Take a screenshot that includes the URL Cloud Run has created for your site.



Sign here

Entries

ahmad <agah@pdx.edu>
signed on 2024-11-03 06:29:50.502619+00:00
Hello Compute Engine!!!

---

ahmad <agah@pdx.edu>
signed on 2024-11-03 05:53:51.099980+00:00
Hello Cloud Shell!

---

ahmad <agah@pdx.edu>
signed on 2024-11-03 04:53:40.249821+00:00
Hello Datastore

---

ahmad <agah@pdx.edu>
signed on 2024-11-08 05:03:41.202080+00:00
Hello App Engine!

---

ahmad <agah>
signed on 2024-11-03 05:13:01.000080+00:00
hello Docker Datastore!

---

ahmad <agah@pdx.edu>
signed on 2024-11-10 06:26:08.345651+00:00
Hello Cloud Run!

- What port do container instances listen on?

Port: The container instances listen on port 8080.

- What are the maximum number of instances Cloud Run will autoscale up to for your service?

Maximum Number of Instances: Cloud Run will autoscale up to 100 instances for your service.

06.4g: Cloud Functions, PubSub

6.4g.4. -

- After downloading the file from the bucket, where is it stored?
-

The file is stored temporarily in the local filesystem of the environment running the Cloud Function.

`tempfile.mkstemp()` creates a temporary file on the local filesystem and returns its path (`temp_local_filename`).
`current_blob.download_to_filename(temp_local_filename)` downloads the image from the **Google Cloud Storage bucket** and saves it to the specified temporary file.

- What class in the ImageMagick package is used to do the blurring of the file?

The `Image` class from the **Wand library** (Python bindings for **ImageMagick**) is used to perform the blurring of the image. This class is responsible for handling image manipulations such as resizing, blurring, and saving images.

- What lines of code perform the blurring of the image and its storage back into the filesystem?

```
with Image(filename=temp_local_filename) as image:
    image.resize(*image.size, blur=16, filter="hamming")
    image.save(filename=temp_local_filename)
```

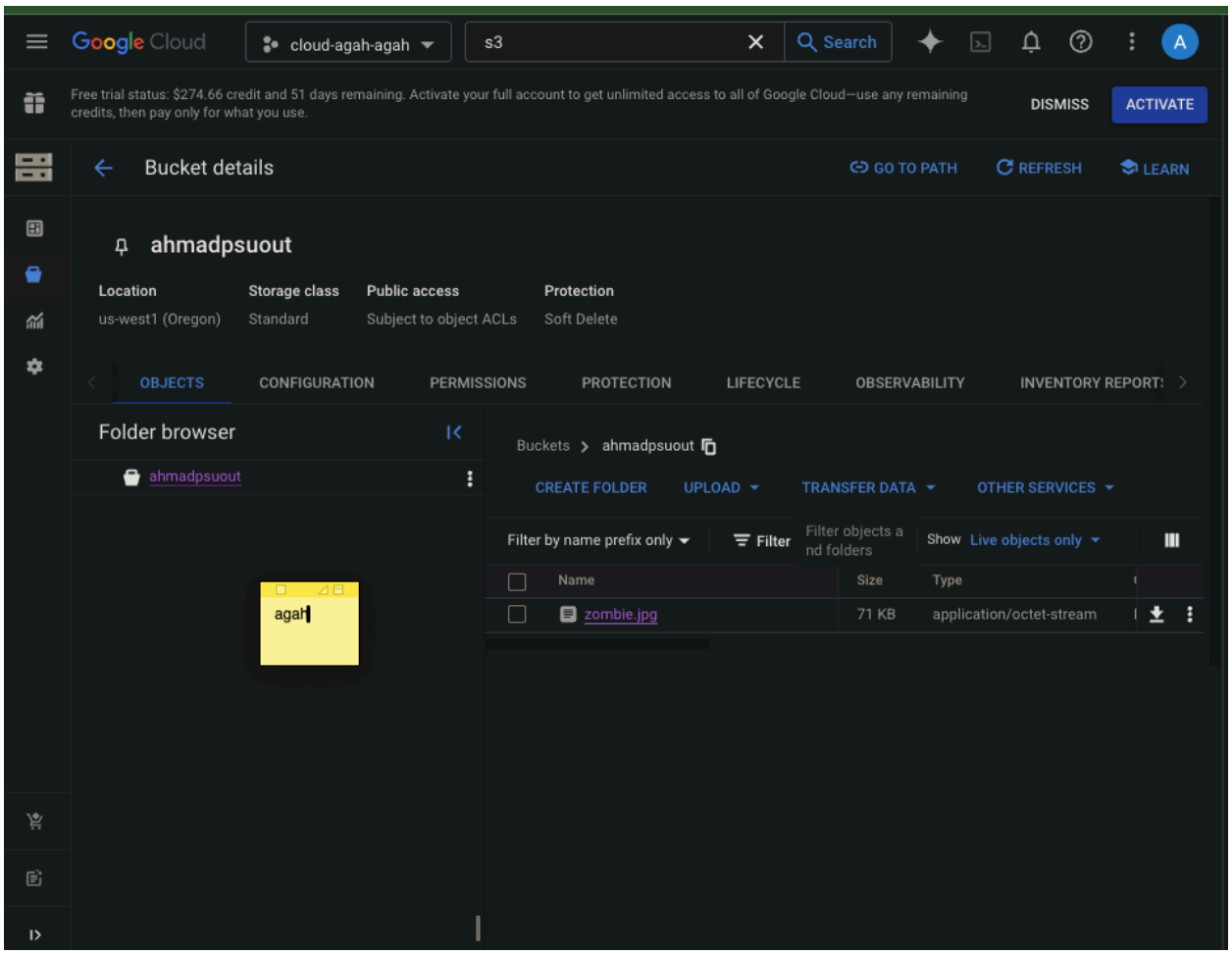
`Image(filename=temp_local_filename)`: Loads the image from the local file into the `Image` object.
`image.resize(*image.size, blur=16, filter="hamming")`: Resizes the image with its current size and applies a blur effect with a strength of `16`. The `filter="hamming"` is used for resizing, but in this context, the blur parameter is the main effect.
`image.save(filename=temp_local_filename)`: Saves the blurred image back to the same temporary file.

This line uploads the modified (blurred) image from the local file system to the specified **Google Cloud Storage bucket**.

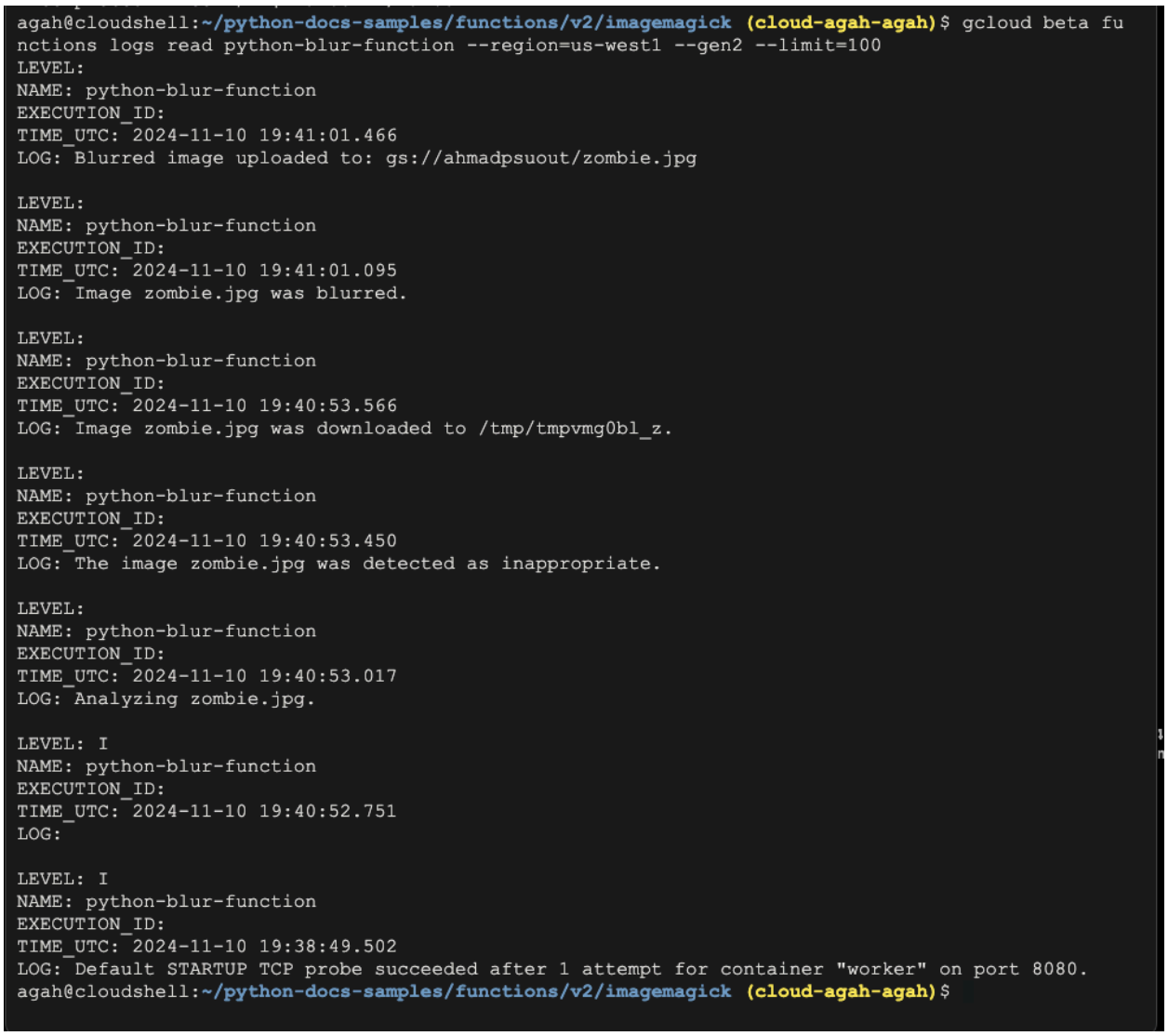
```
new_blob.upload_from_filename(temp_local_filename)
```

6.4g.7. Test function

- Take a screenshot of the blurred image in the output bucket for your lab notebook



- Include a screenshot of the output logs that show that the above image was blurred.



6.4g11. PubSub via CLI

- Why are there no items returned?

In Google Cloud Pub/Sub, subscriptions only start receiving messages that are published after they are created. Any messages published before a subscription is created will not be delivered to that subscription, as they are not retroactive.

6.4g.12. -

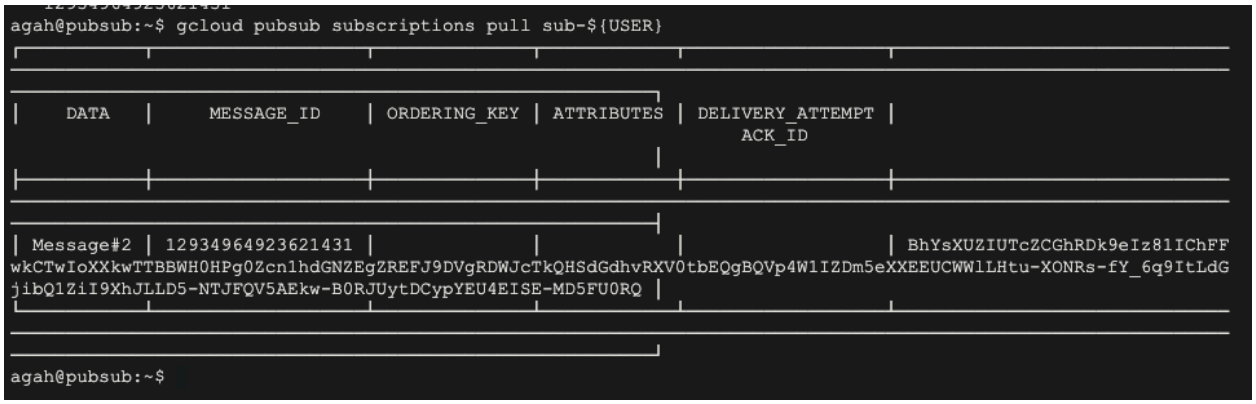
Perform in Cloud Shell

- What is the messageId of the published message?

'12934964923621431'

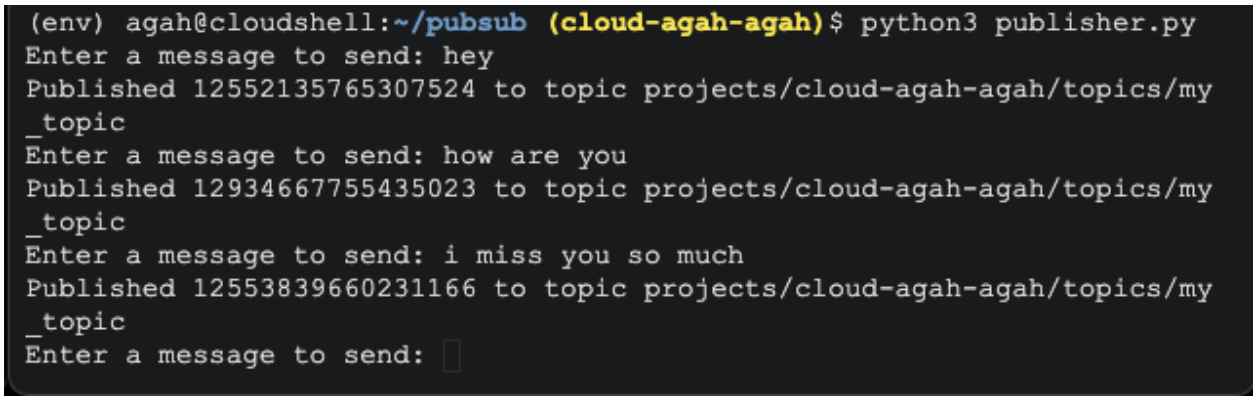
Perform in VM

- Take a screenshot of the output of the successful pull that includes the message and its messageId.



6.4g.15. Test programs and clean up

- Take a screenshot showing the messageIds and messages sent



- Take a screenshot showing the same messageIds and messages received