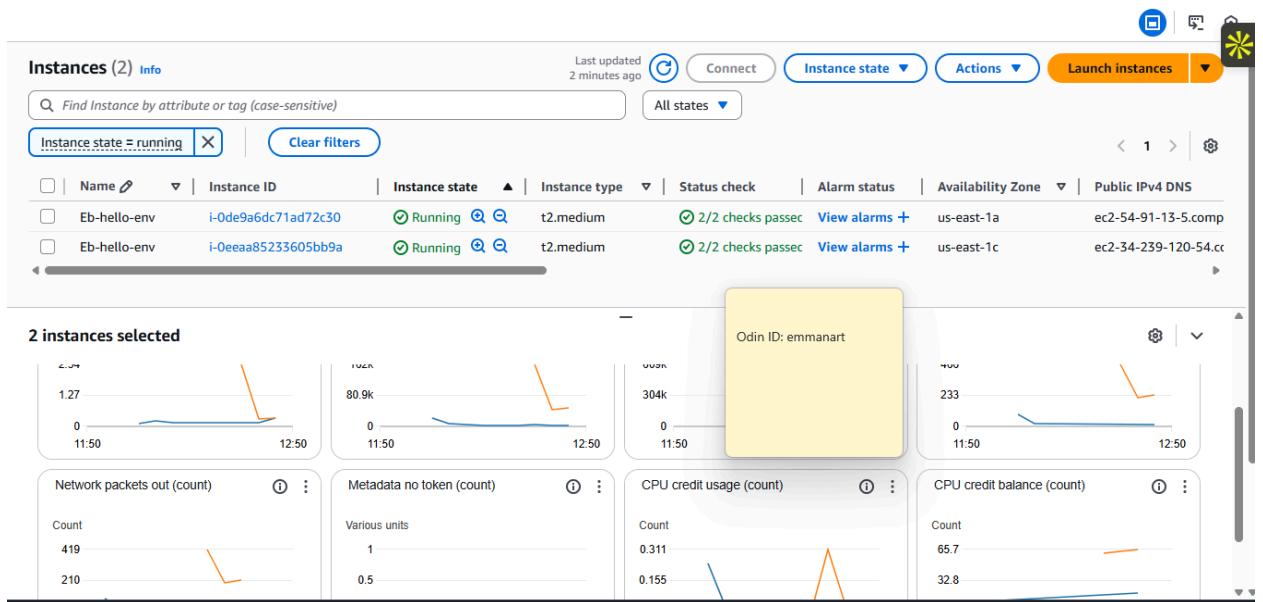


Lab 6.1a

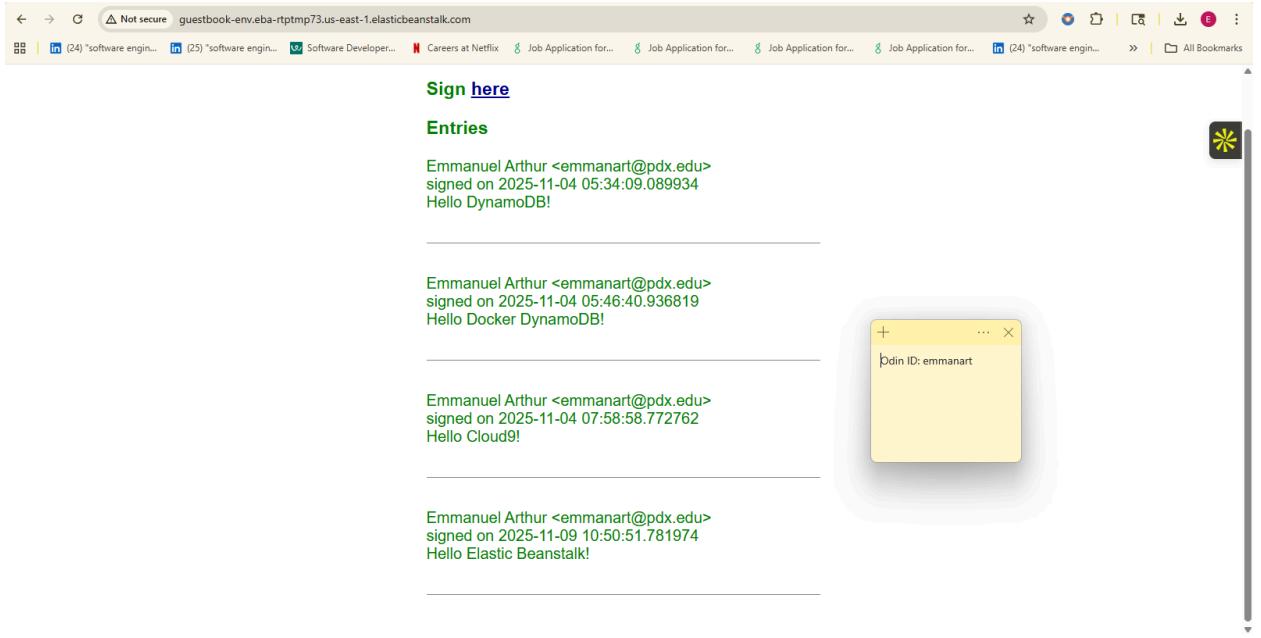
- Take a screenshot showing it has been brought up successfully

Time	Type	Details
November 8, 2025 04:43:30 (UTC-8)	INFO	Environment health has transitioned from Pending to Ok. Initialization completed 7 seconds ago and took 3 minutes.
November 8, 2025 04:42:42 (UTC-8)	INFO	Successfully launched environment: Eb-hello-env
November 8, 2025 04:42:40 (UTC-8)	INFO	Application available at Eb-hello-env.eba-bxpnuttk.us-east-1.elasticbeanstalk.com.
November 8, 2025 04:42:30 (UTC-8)	INFO	Added instances [i-024c6bd68a816dd98, i-0de9a6dc71ad72c30] to your environment.
November 8, 2025 04:42:25 (UTC-8)	INFO	Instance deployment completed successfully.
November 8, 2025 04:42:21 (UTC-8)	INFO	Instance deployment successfully generated a 'Procfile'.
November 8, 2025 04:42:17 (UTC-8)	INFO	Created Load Balancer listener named: arn:aws:elasticloadbalancing:us-east-1:308836072373:listener/app/awseb--AWSEB-SoLYiwBL
November 8, 2025 04:42:02 (UTC-8)	INFO	Created load balancer named: arn:aws:elasticloadbalancing:us-east-1:308836072373:loadbalancer/app/awseb--AWSEB-SoLYiwBL
November 8, 2025 04:40:43 (UTC-8)	INFO	Created CloudWatch alarm named: awseb-e-hmk6wz2nxrmHigh-

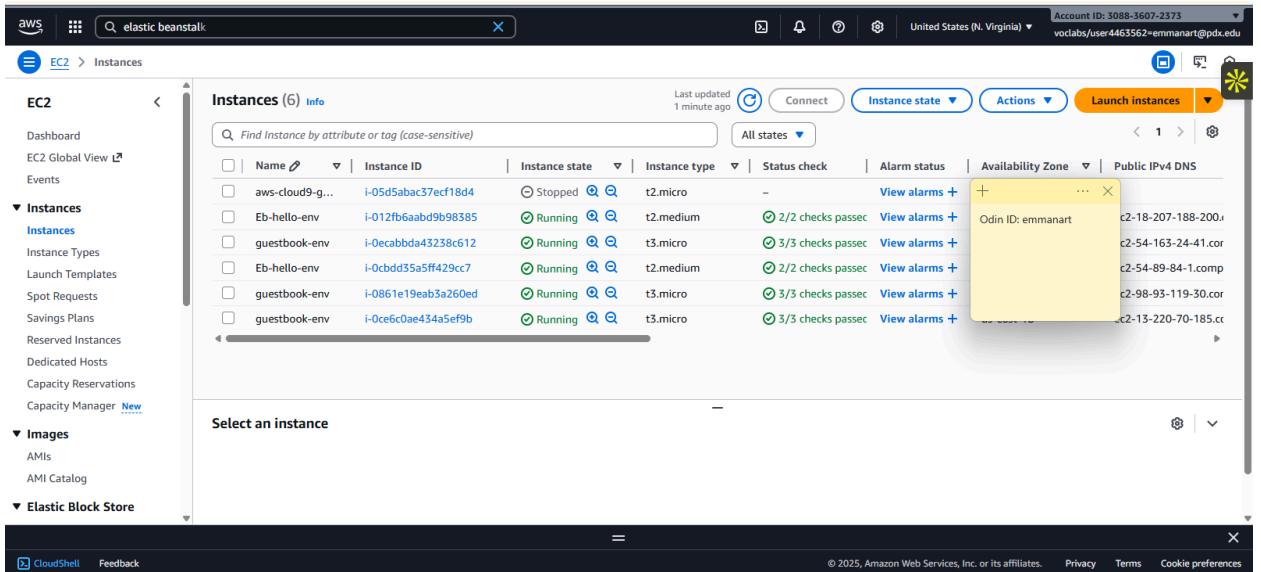
- Take a screenshot of the replacement VM being started.



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



- Take a screenshot of them.



Lab 6.1g

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

Guestbook

[Sign here](#)

Entries

Emmanuel Arthur <emmanart@pdx.edu>
signed on 2025-11-04 07:13:08.151893+00:00
Hello Docker Datastore!

Emmanuel Arthur <emmanart@pdx.edu>
signed on 2025-11-09 11:01:51.940701+00:00
Hello App Engine!

Emmanuel Arthur <emmanart@pdx.edu>
signed on 2025-11-04 06:59:49.970423+00:00
Hello Datastore!

Emmanuel Arthur <emmanart@pdx.edu>
signed on 2025-11-09 11:02:55.078837+00:00
Hello App Engine!

- Take a screenshot of them.

Google Cloud | cloud-Arthur-emmanart | app engine | Search | 6 | E

Instances | Refresh | Delete

1 hour 6 hours 12 hours 1 day 2 days 4 days 7 days 14 days 30 days

Summary

Odin ID: emmanart

UTC-8 2:15 AM 2:20 AM 2:25 AM 2:30 AM 2:35 AM 2:40 AM 2:45 AM 2:50 AM 2:55 AM 3:00 AM 3:02 AM

Client (4XX): 0 Total requests: 0

Instances

ID	QPS	Latency	Requests	Errors	Memory	Start Time	Availability
001477829671a6...	0	0 ms	7	0	107.7 MB	Nov 9, 2025, 2:59:08 AM	Resident
0014778296b566...	0	0 ms	8	0	108 MB	Nov 9, 2025, 2:59:08 AM	Resident

CLOUD SHELL Terminal (cloud-arthur-emmanart) +

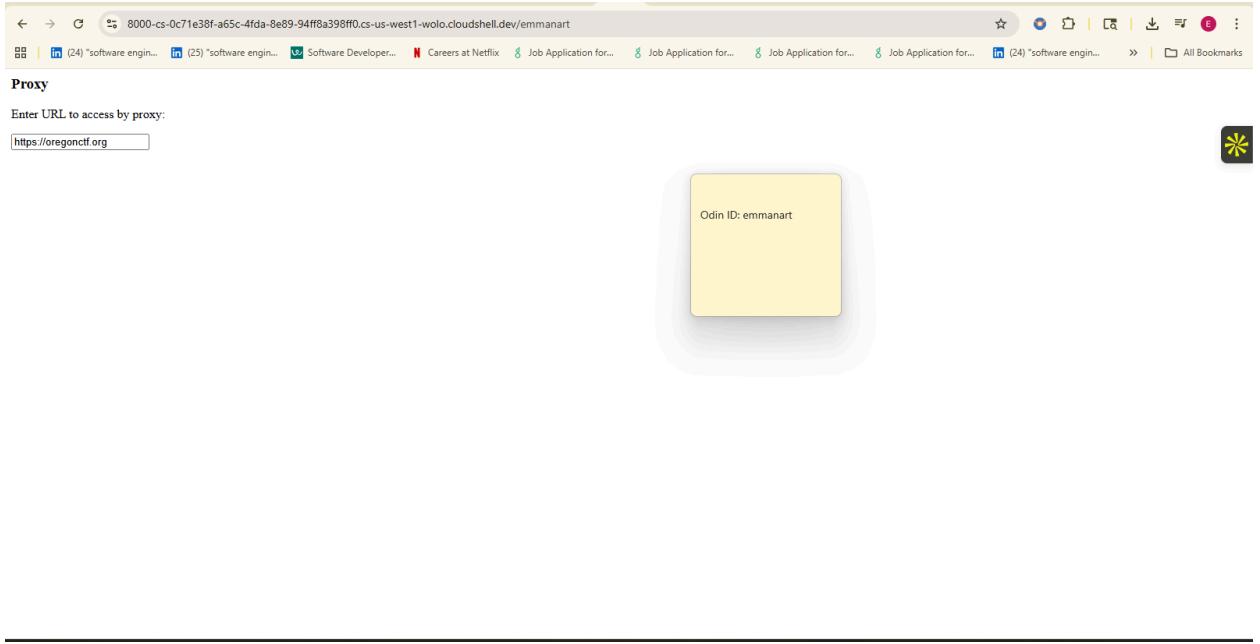
LEARN Tutorial

Manage Instances

- How instances are managed
- Labeling App Engine resources
- Migrating traffic
- Splitting traffic
- Scheduling jobs with cron.yaml

Lab 6.2g

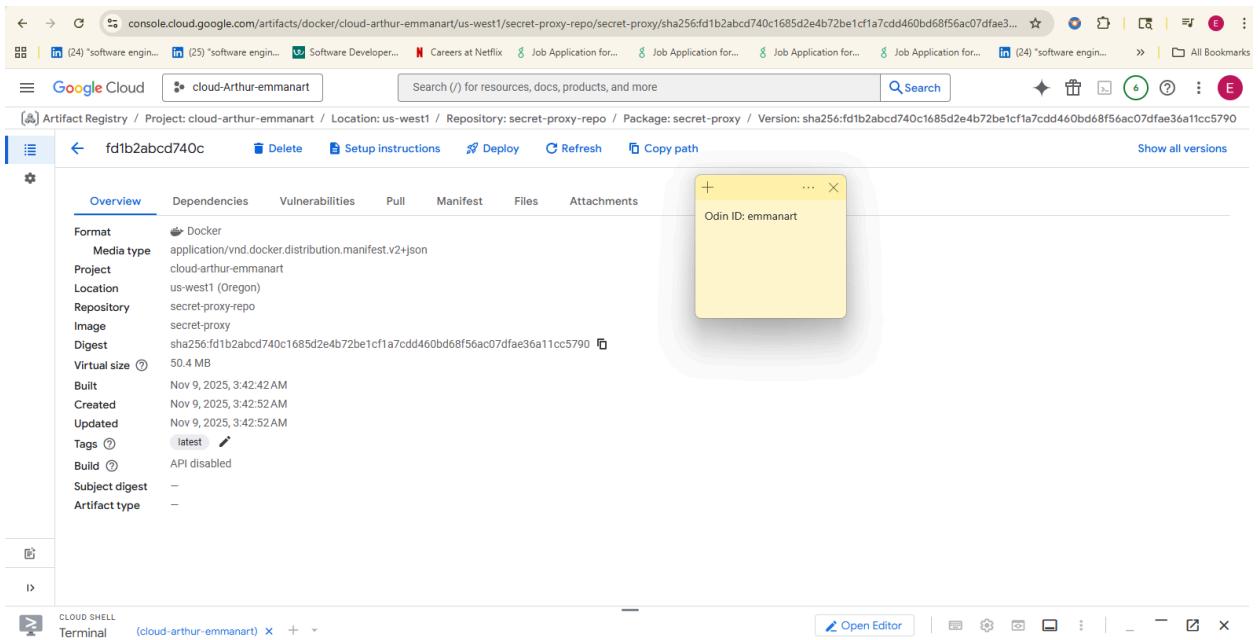
- Take a screenshot of the proxy and its results including the URL containing your OdinID



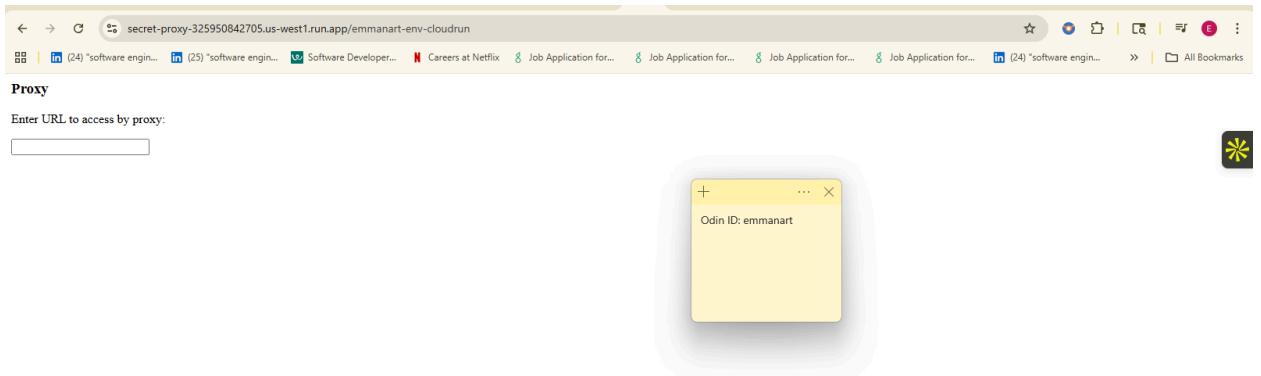
- What is the security advantage of passing in the secret proxy route as an environment variable?

It prevent accidental or unauthorized disclosure of secrets in the code because we separate the function of the application from its configuration or deployment information

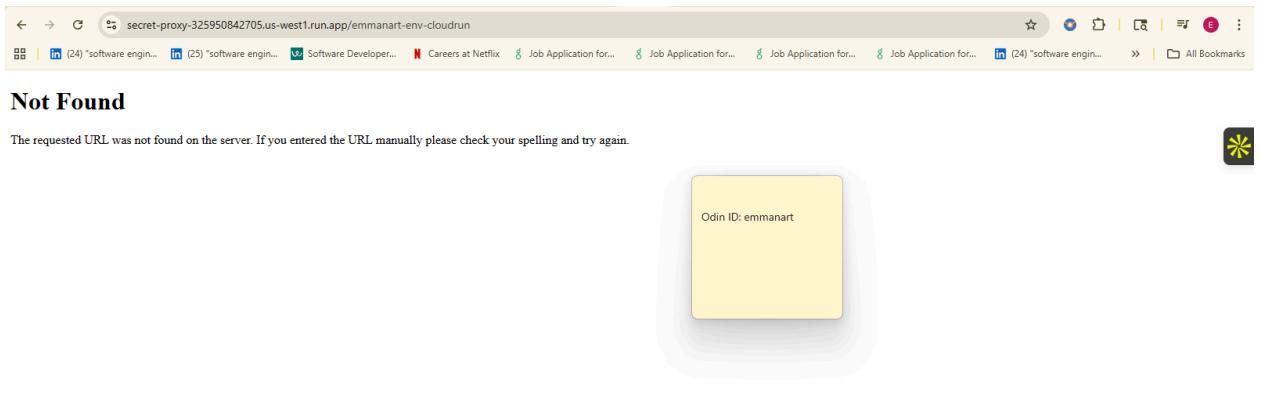
- Take a screenshot of the image in the registry that shows the size of the container for your lab notebook.



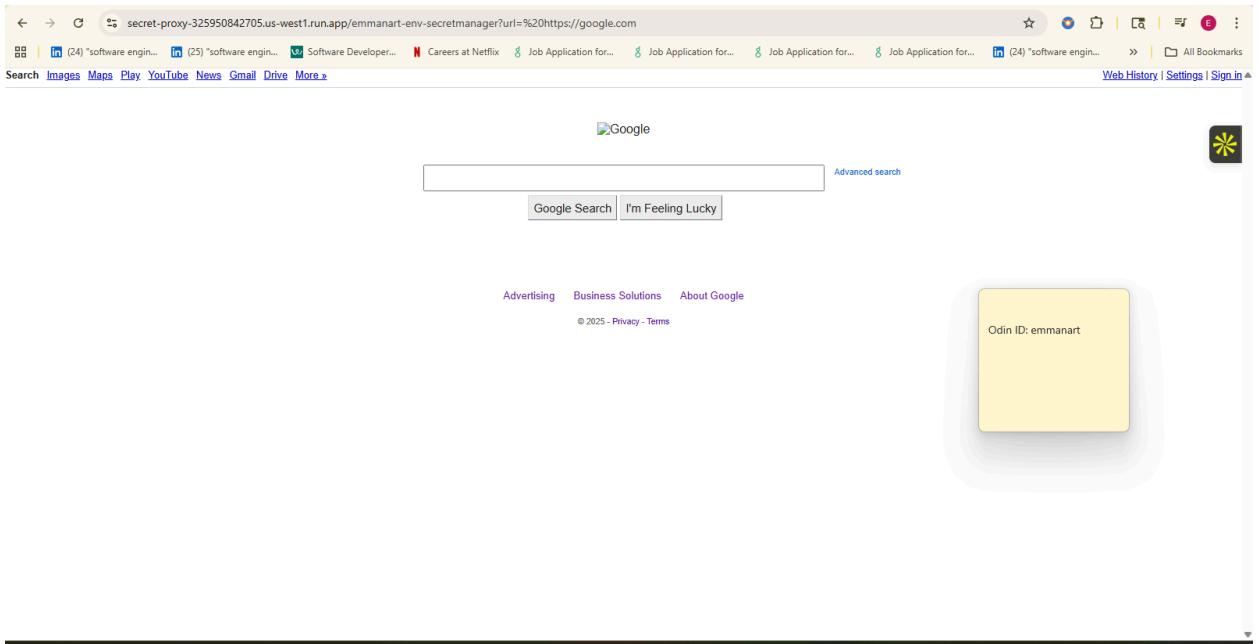
- Take a screenshot of it that includes the proxy URL for your lab notebook.



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



-
- 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.

The vulnerability is Server-Side Request Forgery against the Metadata Service, which could expose service account tokens and allow privilege escalation. In response Google has created a container runtime sandbox that blocks all access to the metadata service (169.254.169.254) from within deployed containers. This isolation prevents applications—even vulnerable ones—from stealing service account tokens or project metadata via SSRF.

Lab 6.3a

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

The screenshot shows the AWS EC2 Load Balancers console. On the left, there's a navigation sidebar with options like Dashboard, EC2 Global View, Events, Instances, Images, and Elastic Block Store. The main area is titled 'guestbook-lb' and has a 'Details' section. In this section, under the 'DNS name' field, the value 'guestbook-lb-518142715.us-east-1.elb.amazonaws.com (A Record)' is highlighted with a yellow circle.

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

The screenshot shows a web browser displaying four entries from the Guestbook app. Each entry consists of a timestamp, a signature, and a message. The first entry is highlighted with a yellow circle.

Timestamp	Signature	Message
signed on 2025-11-04 05:34:09.089934	Emmanuel Arthur <emmanart@pdx.edu>	Hello DynamoDB!
signed on 2025-11-04 05:46:40.936819	Emmanuel Arthur <emmanart@pdx.edu>	Hello Docker DynamoDB!
signed on 2025-11-04 07:58:58.772762	Emmanuel Arthur <emmanart@pdx.edu>	Hello Cloud!
signed on 2025-11-09 10:50:51.781974	Emmanuel Arthur <emmanart@pdx.edu>	Hello Elastic Beanstalk!
signed on 2025-11-10 08:31:26.206643	Emmanuel Arthur <emmanart@pdx.edu>	Hello ECS!

Lab 6.3g

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

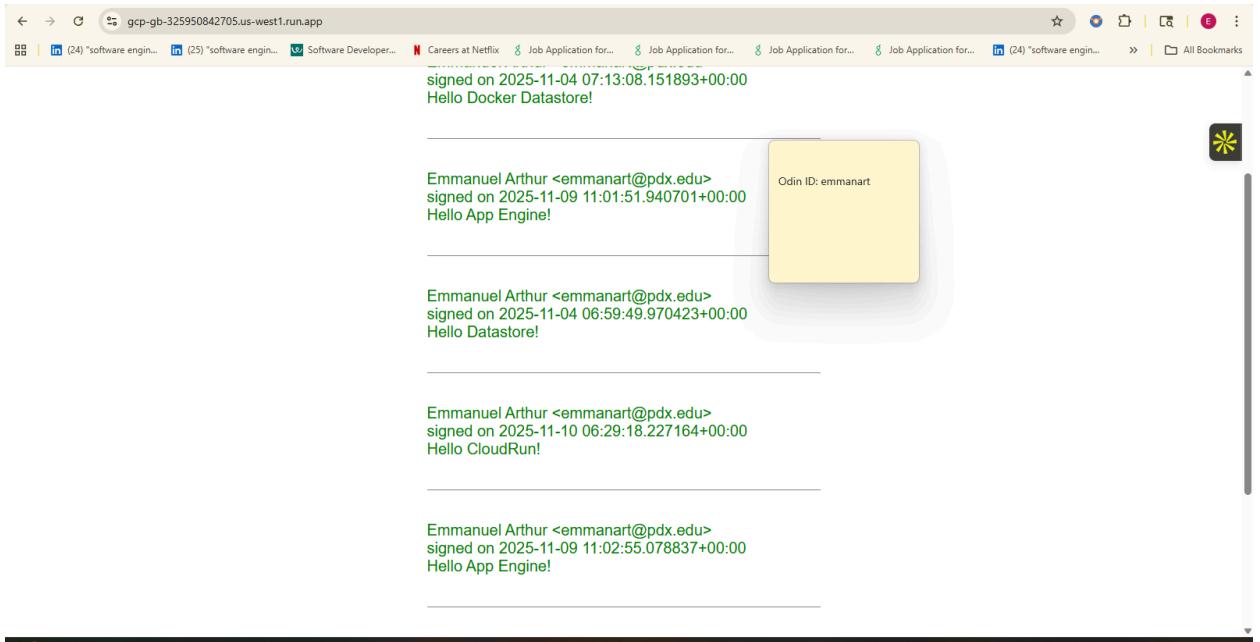
The screenshot shows the Google Cloud Build interface. The top navigation bar includes 'Google Cloud' and a search bar. The main area displays a successful build summary for build ID '1ef81ade-9f7b-43bd-8079-fcfc9f5c4760', which started on Nov 9, 2025, at 10:11:59 PM. The build summary table shows two steps: 'Build Summary' (1 Step, duration 00:04:32) and '0: gcr.io/cloud-builders/gcb-internal docker build --network cloudbuild ...' (duration 00:01:38). The 'Build log' tab is selected, showing a detailed log of the build process. The log output is as follows:

```
1 starting build "1ef81ade-9f7b-43bd-8079-fcfc9f5c4760"
2
3 FETCHSOURCE
4 Fetching storage object: gs://cloud-arthur-emmanart_cloudbuild/source/1762755101.617189-87652ee6c5aa4a7cb34458d3389a466.tgz#1762755101...
5 Copying gs://cloud-arthur-emmanart_cloudbuild/source/1762755101.617189-87652ee6c5aa4a7cb34458d3389a466.tgz#1762755101...
6 / [1 files] 0.0 B / 10.5 MiB
7 / [1 files] 10.5 MiB / 10.5 MiB
8 Operation completed over 1 objects/10.5 MiB.
9 BUILD
10 Already have image (with digest): gcr.io/cloud-builders/gcb-internal
11 Sending build context to Docker daemon 28.67KB
12
13 Step 0/1 : FROM google/cloud-sdk
14 latest: Pulling from google/cloud-sdk
15 cd01849e3cb0: Already exists
16 45e47c27fc03: Pulling fs layer
17 1b1d7a2106c6: Pulling fs layer
18 880f3272d9e0: Pulling fs layer
19 e59bc7c6a6f5: Pulling fs layer
20 e59bc7c6a6f5: Pulling fs layer
21 abfe3e072d98e2: Verifying Checksum
```

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

The screenshot shows the Google Artifact Registry interface. The top navigation bar includes 'Google Cloud' and a search bar. The main area displays a container image named '4cb6cdb435163'. The 'Overview' tab is selected, showing details such as Format (Docker), Media type (application/vnd.docker.distribution.manifest.v2+json), Project (cloud-arthur-emmanart), Location (us-west1 (Oregon)), Repository (guestbook-repo), Image (gcp_gb), Digest (sha256:4cb6cdb435163c312c2f4adce1981e6a8c8421d3272506fcfed74d411e26937), Virtual size (1.4 GB), Built (Nov 9, 2025, 10:13:42 PM), Created (Nov 9, 2025, 10:16:31 PM), Updated (Nov 9, 2025, 10:16:31 PM), Tags (latest), Build (API disabled), Subject digest (—), and Artifact type (—). The 'CLOUD SHELL' section at the bottom shows a terminal window with the command 'responsible-map-473820-h8' running. A yellow sticky note in the top right corner says 'Odin ID: emmanart'.

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



- What port do container instances listen on?

8080

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

20

Lab 6.4g

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

It is stored in a temporary file whose location is what the function call `tempfile.mkstemp()` returns

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

Image class

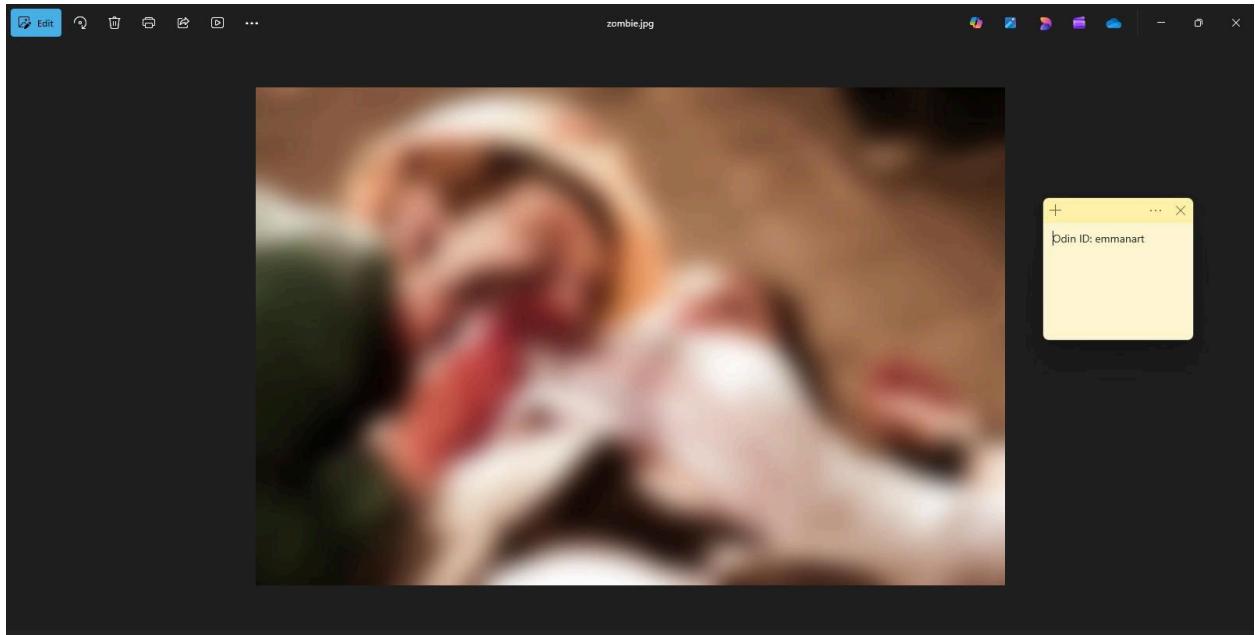
- What lines of code perform the blurring of the image and its storage back into the filesystem?

with `Image(filename=temp_local_filename)` as `image`:

```
image.blur(radius=0, sigma=16)
```

```
image.save(filename=temp_local_filename)
```

- 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.

Cloud Shell Editor

```
(responsible-map-473820-h8) ✘ (cloud-arthur-emmanart) ✘ + ·
```

Gemini CLI is available in Cloud Shell terminal! Type gemini to try it. [Learn more](#)

Don't show again Dismiss

```
emmanart@cloudshell:~/cm430-src/05_gcp_datastore/python-docs-samples/functions/v2/imagemagick (cloud-arthur-emmanart)$ ls
main.py main_test.py README.md requirements-test.txt requirements.txt zombie.jpg
emmanart@cloudshell:~/cm430-src/05_gcp_datastore/python-docs-samples/functions/v2/imagemagick (cloud-arthur-emmanart)$ gcloud beta functions logs read python-blur-function --region=us-west1 --gen2 --l
imt=100
LEVEL:
NAME: python-blur-function
EXECUTION_ID: Th15ZLopSVX
TIME UTC: 2025-11-10 07:21:41.099
LOG: Blurred image uploaded to: gs://emmanart-img-out/zombie.jpg

LEVEL:
NAME: python-blur-function
EXECUTION_ID: Th15ZLopSVX
TIME UTC: 2025-11-10 07:21:40.928
LOG: Image zombie.jpg was blurred.

LEVEL:
NAME: python-blur-function
EXECUTION_ID: Th15ZLopSVX
TIME UTC: 2025-11-10 07:21:36.228
LOG: Image zombie.jpg was downloaded to /tmp/tmpsalerbt0.

LEVEL:
NAME: python-blur-function
EXECUTION_ID: Th15ZLopSVX
TIME UTC: 2025-11-10 07:21:36.165
LOG: The image zombie.jpg was detected as inappropriate.

LEVEL:
NAME: python-blur-function
EXECUTION_ID: Th15ZLopSVX
TIME UTC: 2025-11-10 07:21:35.654
LOG: Analyzing zombie.jpg.

LEVEL:
NAME: python-blur-function
EXECUTION_ID:
TIME UTC: 2025-11-10 07:21:34.815
LOG:
```

- Why are there no items returned?

Because the subscription was created after the message was published

- What is the **messageld** of the published message?

- '16855900736776258'

```

Cloud Shell Editor
(responsible-map-473820-h8) × (cloud-arthur-emmanart) × + ▾
Gemini CLI is available in Cloud Shell terminal! Type gemini to try it. Learn more
Don't show again Dismiss

Expanded Security Maintenance for Applications is not enabled.
0 updates can be applied immediately.
Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

emmanart@pubsub:~$ gcloud pubsub topics create topic-$USER
Created topic [projects/cloud-arthur-emmanart/topics/topic-emmanart].
emmanart@pubsub:~$ gcloud pubsub topics publish projects/cloud-arthur-emmanart/topics/topic-emmanart
--message="Message #1"
ERROR: (gcloud.pubsub.topics.publish) You cannot send an empty message. You must specify either a MESSAGE, one or more ATTRIBUTE, or both.
--message="Message #1": command not found
emmanart@pubsub:~$ gcloud pubsub topics publish projects/cloud-arthur-emmanart/topics/topic-emmanart --message="Hello!"
messageIds:
- '16856180416218522'
emmanart@pubsub:~$ gcloud pubsub subscriptions create sub-$USER \
--topic=projects/cloud-arthur-emmanart/topics/topic-emmanart
Created subscription [projects/cloud-arthur-emmanart/subscriptions/sub-emmanart].
emmanart@pubsub:~$ gcloud pubsub subscriptions pull sub-$USER
Listed 0 items.
emmanart@pubsub:~$ gcloud pubsub topics publish projects/cloud-arthur-emmanart/topics/topic-emmanart --message="Hi world!"
messageIds:
- '16855900736776258'
emmanart@pubsub:~$ 

```

Odin ID: emmanart

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

```

Cloud Shell Editor
(responsible-map-473820-h8) × (cloud-arthur-emmanart) × + ▾
Gemini CLI is available in Cloud Shell terminal! Type gemini to try it. Learn more
Don't show again Dismiss

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

emmanart@pubsub:~$ gcloud pubsub topics create topic-$USER
Created topic [projects/cloud-arthur-emmanart/topics/topic-emmanart].
emmanart@pubsub:~$ gcloud pubsub topics publish projects/cloud-arthur-emmanart/topics/topic-emmanart
--message="Message #1"
ERROR: (gcloud.pubsub.topics.publish) You cannot send an empty message. You must specify either a MESSAGE, one or more ATTRIBUTE, or both.
--message="Message #1": command not found
emmanart@pubsub:~$ gcloud pubsub topics publish projects/cloud-arthur-emmanart/topics/topic-emmanart --message="Hello!"
messageIds:
- '16856180416218522'
emmanart@pubsub:~$ gcloud pubsub subscriptions create sub-$USER \
--topic=projects/cloud-arthur-emmanart/topics/topic-emmanart
Created subscription [projects/cloud-arthur-emmanart/subscriptions/sub-emmanart].
emmanart@pubsub:~$ gcloud pubsub subscriptions pull sub-$USER
Listed 0 items.
emmanart@pubsub:~$ gcloud pubsub topics publish projects/cloud-arthur-emmanart/topics/topic-emmanart --message="Hi world!"
messageIds:
- '16855900736776258'
emmanart@pubsub:~$ gcloud pubsub subscriptions pull sub-$USER
|-----|-----|-----|-----|-----|
| DATA | MESSAGE_ID | ORDERING_KEY | ATTRIBUTES | DELIVERY_ATTEMPT | ACK_ID
|-----|-----|-----|-----|-----|
| Hi world! | 16855900736776258 | | | | BhYxXUZIUTeZCGhRDk9eIz81IChFEGATwIoXXXwITB8WxQ8Pg0Zcn1hdGMLFVJQTAf4X1kRDWJcTkQH5YmYhIVXV7tbFQkHQFp-XiWfC29bWncCW5X0msC
sR6FPPhs-Rdf qMtlDyinlwO2l19XhJLLDs-NSJFQVSAEkw-FORJUytDCypYSU4EISE-MD5FUoRQ |
|-----|-----|-----|-----|-----|
emmanart@pubsub:~$ 

```

Odin ID: emmanart

- Take a screenshot showing the **messagelds** and messages sent

Cloud Shell Editor

(responsible-map-473820-h8) (cloud-arthur-emmanart) (responsible-map-473820-h8) (cloud-arthur-emmanart) + -

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```
File "/home/emmanart/publisher.py", line 11, in <module>
    publisher.create_topic(name=topic_name)
File "/home/emmanart/env/lib/python3.12/site-packages/google/pubsub_v1/services/publisher/client.py", line 914, in create_topic
    response = rpc(
        ...
File "/home/emmanart/env/lib/python3.12/site-packages/google/api_core/gapic_v1/method.py", line 101, in __call__
    return wrapped_func(*args, **kwargs)
        ...
File "/home/emmanart/env/lib/python3.12/site-packages/google/api_core/retry/retry_unary.py", line 294, in retry_wrapped_f
    return retry_target(
        ...
File "/home/emmanart/env/lib/python3.12/site-packages/google/api_core/retry/retry_unary.py", line 156, in retry_target
    next_sleep = _retry_error_helper(
        ...
File "/home/emmanart/env/lib/python3.12/site-packages/google/api_core/retry/retry_base.py", line 214, in _retry_error_he
    raise final_exc from source_exc
File "/home/emmanart/env/lib/python3.12/site-packages/google/api_core/retry/retry_unary.py", line 147, in retry_target
    result = target()
        ...
File "/home/emmanart/env/lib/python3.12/site-packages/google/api_core/timeout.py", line 130, in func_with_timeout
    return func(*args, **kwargs)
        ...
File "/home/emmanart/env/lib/python3.12/site-packages/google/api_core/grpc_helpers.py", line 77, in error_remapped_callable
    raise exceptions.from_grpc_error(exc) from exc
google.api_core.exceptions.InvalidArgument: 400 You have passed an invalid argument to the service (argument=GOOGLE_CLOUD_PROJECT).
(env) emmanart@cloudshell:~ (cloud-arthur-emmanart)$ nano publisher.py
(env) emmanart@cloudshell:~ (cloud-arthur-emmanart)$ python3 publisher.py
Enter a message to send: hello everybody
Published 16856471177614426 to topic projects/cloud-arthur-emmanart/topics/my_topic
Enter a message to send: how are you doing?
Published 16856409287962338 to topic projects/cloud-arthur-emmanart/topics/my_topic
Enter a message to send: hope you are doing well
Published 1685605476649985 to topic projects/cloud-arthur-emmanart/topics/my_topic
Enter a message to send: it's the rainy season
Published 16856536552631011 to topic projects/cloud-arthur-emmanart/topics/my_topic
Enter a message to send: happy halloween
Published 16856445563185824 to topic projects/cloud-arthur-emmanart/topics/my_topic
Enter a message to send: []
Odin ID: emmanart
```

- Take a screenshot showing the same **messagelds** and messages received

Cloud Shell Editor

(responsible-map-473820-h8) (cloud-arthur-emmanart) (responsible-map-473820-h8) (cloud-arthur-emmanart) + -

Gemini CLI is available in Cloud Shell terminal! Type gemini to try it. [Learn more](#)

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```
(env) emmanart@pubsub:~ $ nano subscriber.py
(env) emmanart@pubsub:~ $ python3 subscriber.py
/home/emmanart/env/lib/python3.10/site-packages/google/api_core/_python_version_support.py:266: FutureWarning: You are using a Python version (3.10.12) which Google will stop supporting in new releases of google.api.core once it reaches its end of life (2026-10-04). Please upgrade to the latest Python version, or at least Python 3.11, to continue receiving updates for google.api_core past that date.
warnings.warn(message, FutureWarning)
Using subscription previously created...
Traceback (most recent call last):
  File "/home/emmanart/subscriber.py", line 21, in <module>
    future.result()
  File "/usr/lib/python3.10/concurrent/futures/_base.py", line 458, in result
    return self._get_result()
  File "/usr/lib/python3.10/concurrent/futures/_base.py", line 403, in _get_result
    raise self._exception
google.api_core.exceptions.InvalidArgument: 400 You have passed an invalid argument to the service (argument=GOOGLE_CLOUD_PROJECT).
(env) emmanart@pubsub:~ $ python3 subscriber.py
/home/emmanart/env/lib/python3.10/site-packages/google/api_core/_python_version_support.py:266: FutureWarning: You are using a Python version (3.10.12) which Google will stop supporting in new releases of google.api.core once it reaches its end of life (2026-10-04). Please upgrade to the latest Python version, or at least Python 3.11, to continue receiving updates for google.api_core past that date.
warnings.warn(message, FutureWarning)
Using subscription previously created...
Traceback (most recent call last):
  File "/home/emmanart/subscriber.py", line 21, in <module>
    future.result()
  File "/usr/lib/python3.10/concurrent/futures/_base.py", line 458, in result
    return self._get_result()
  File "/usr/lib/python3.10/concurrent/futures/_base.py", line 403, in _get_result
    raise self._exception
google.api.core.exceptions.InvalidArgument: 400 You have passed an invalid argument to the service (argument=GOOGLE_CLOUD_PROJECT).
(env) emmanart@pubsub:~ $ nano subscriber.py
/home/emmanart/env/lib/python3.10/site-packages/google/api_core/_python_version_support.py:266: FutureWarning: You are using a Python version (3.10.12) which Google will stop supporting in new releases of google.api.core once it reaches its end of life (2026-10-04). Please upgrade to the latest Python version, or at least Python 3.11, to continue receiving updates for google.api_core past that date.
warnings.warn(message, FutureWarning)
Received message 16856471177614426: 2025-11-10 08:00:09 (projects/cloud-arthur-emmanart/topics/my_topic) : hello everybody
Received message 16856409287962338: 2025-11-10 08:00:16 (projects/cloud-arthur-emmanart/topics/my_topic) : how are you doing?
Received message 1685605476649985: 2025-11-10 08:00:21 (projects/cloud-arthur-emmanart/topics/my_topic) : hope you are doing well
Received message 16856536552631011: 2025-11-10 08:00:29 (projects/cloud-arthur-emmanart/topics/my_topic) : it's the rainy season
Received message 16856445563185824: 2025-11-10 08:00:39 (projects/cloud-arthur-emmanart/topics/my_topic) : happy halloween
[]
```