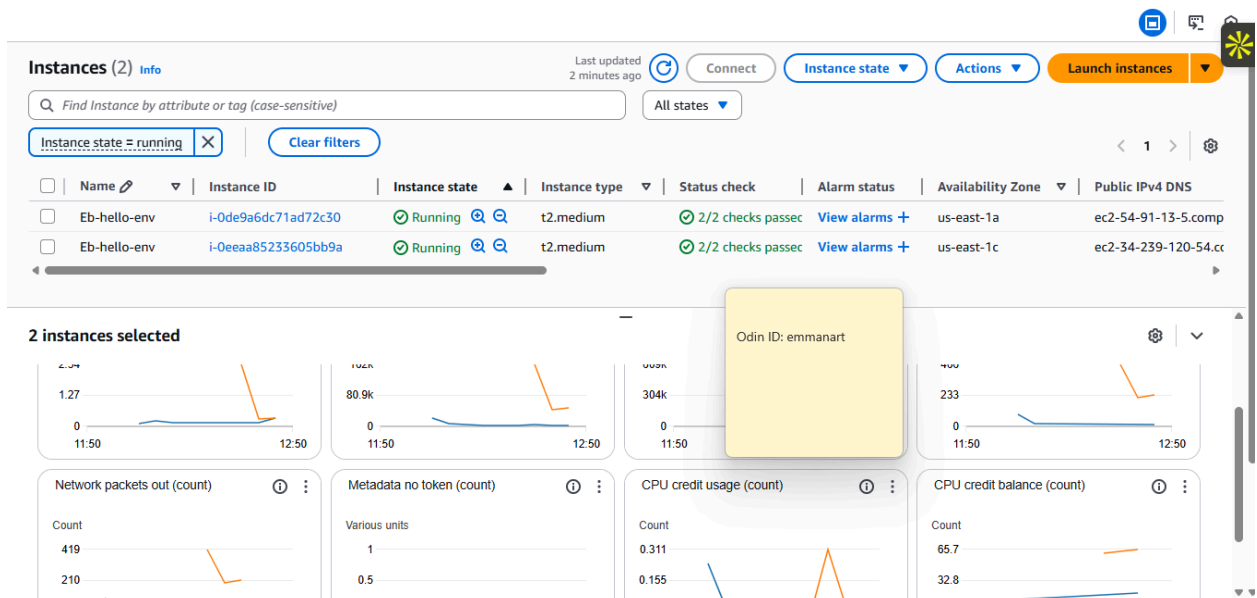


Lab 6.1a

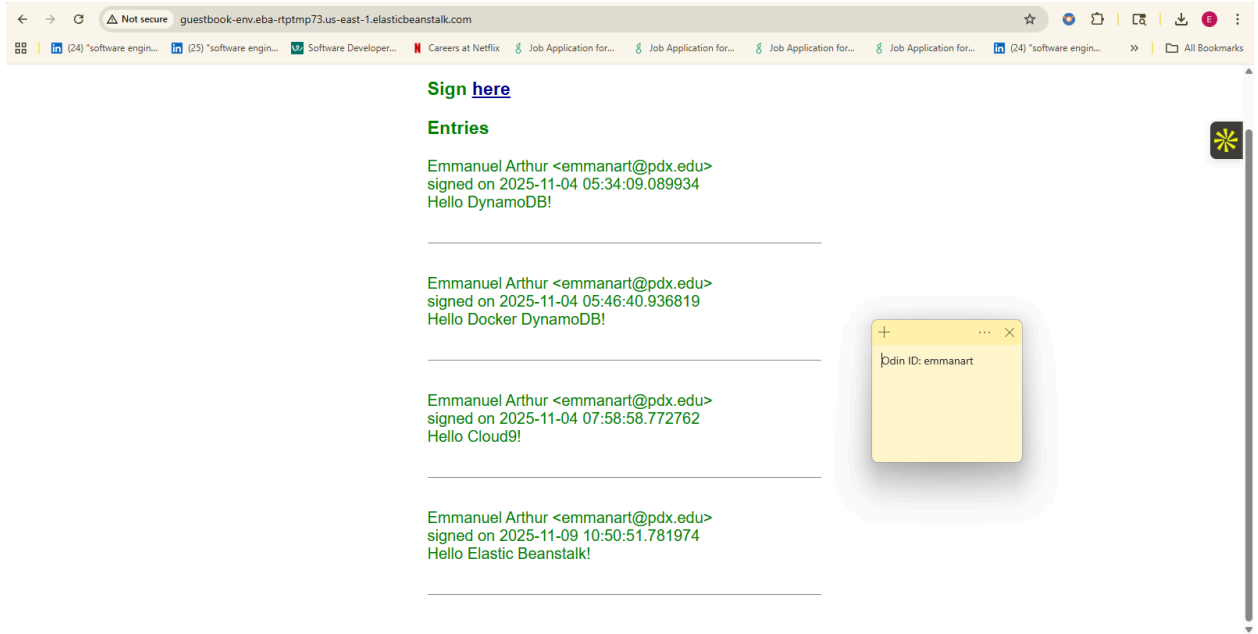
- Take a screenshot showing it has been brought up successfully

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 'Profile'.
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-hmk6wz2nx

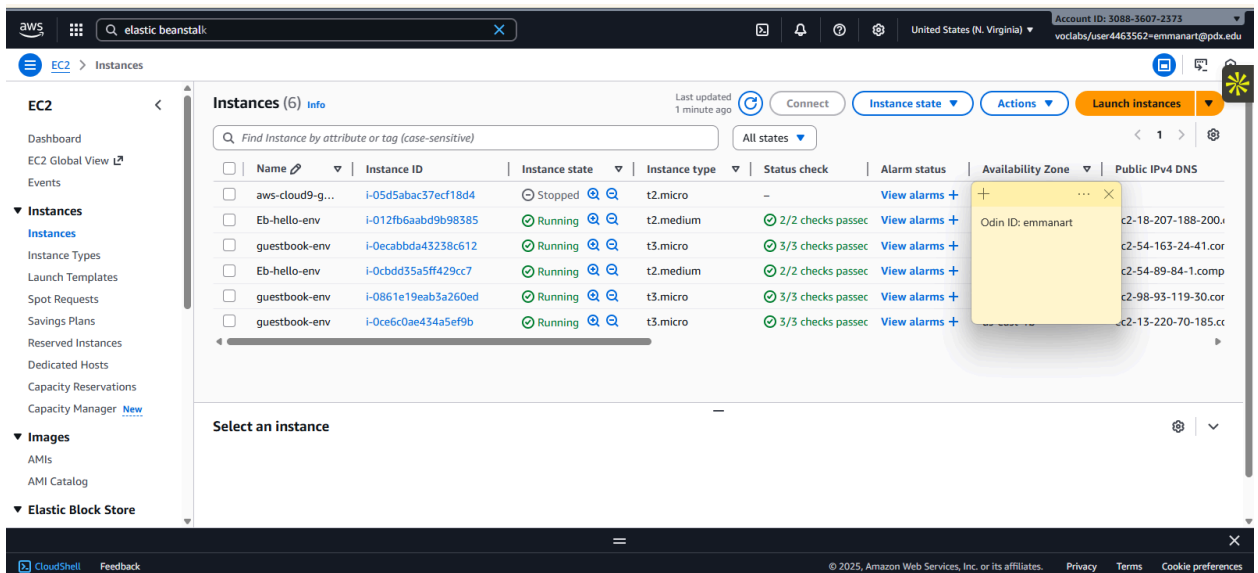
- Take a screenshot of the replacement VM being started.



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

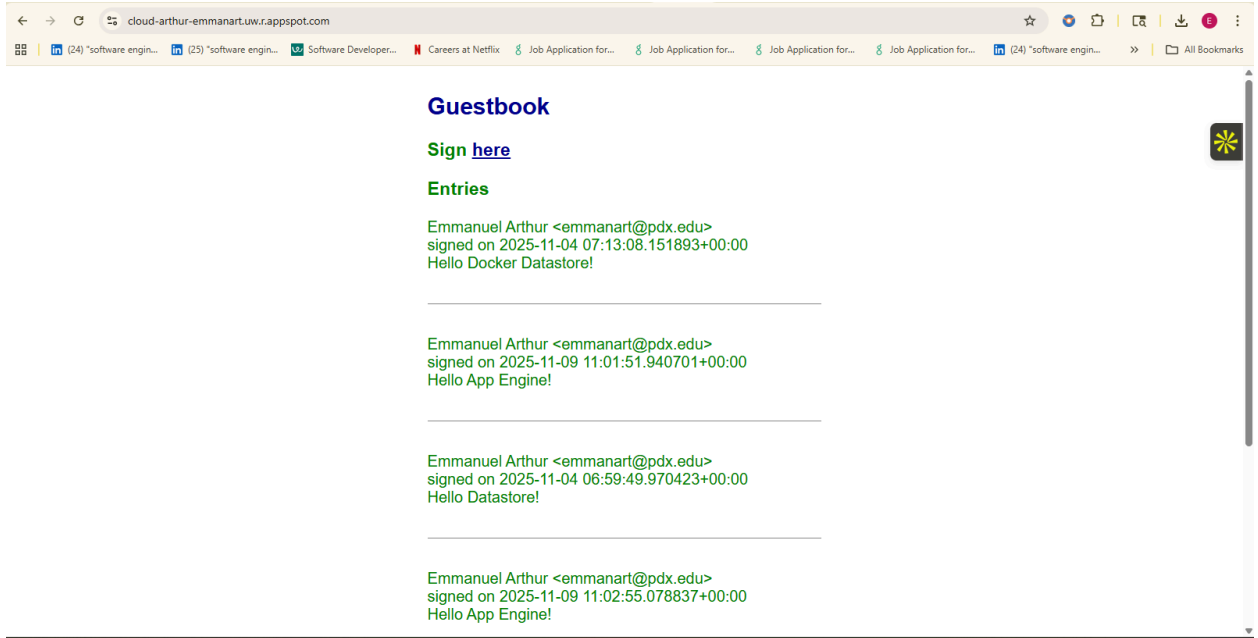


- Take a screenshot of them.

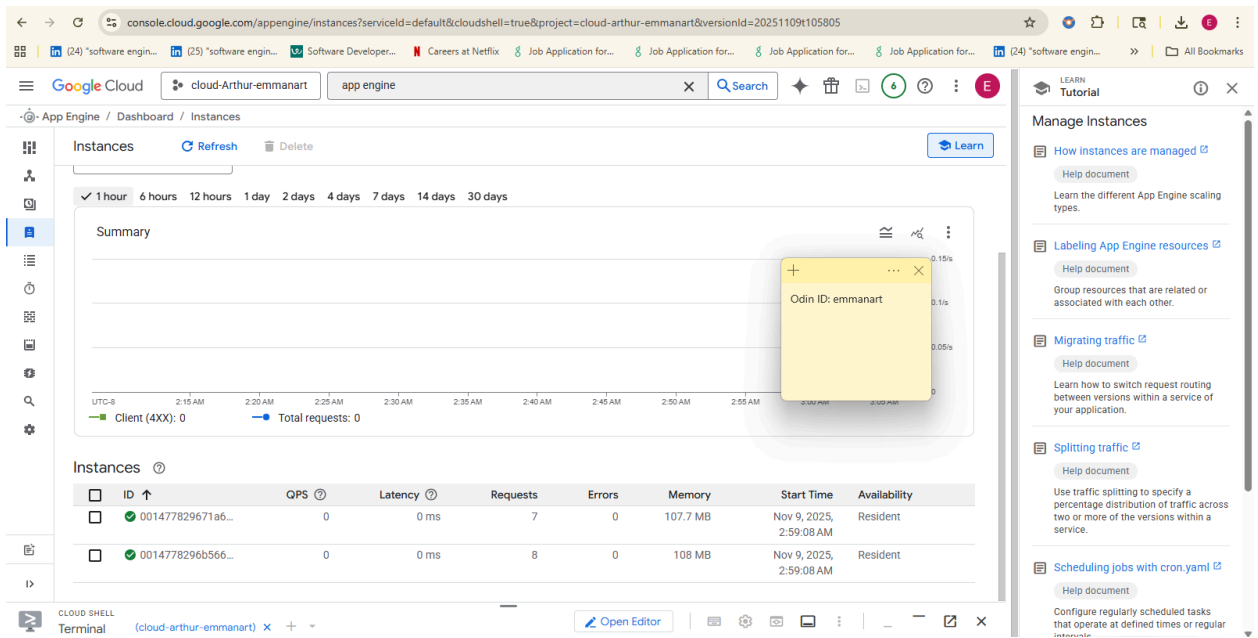


Lab 6.1g

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



- Take a screenshot of them.



Lab 6.2g

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



Proxy

Enter URL to access by proxy:

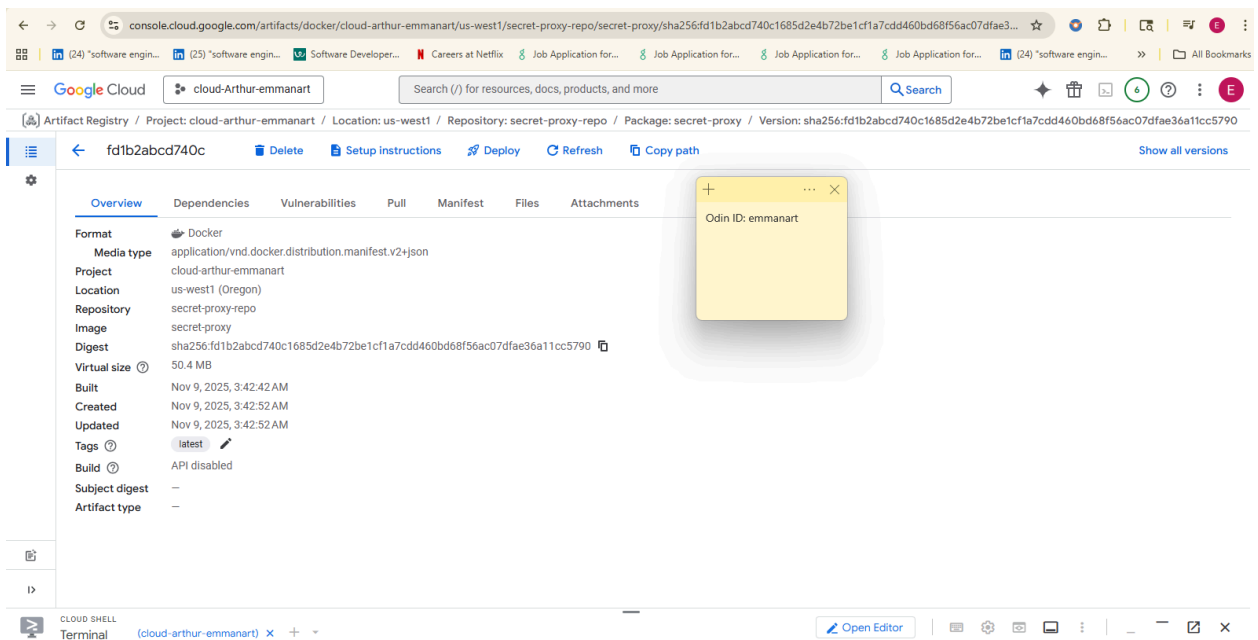


Odin ID: emmanart

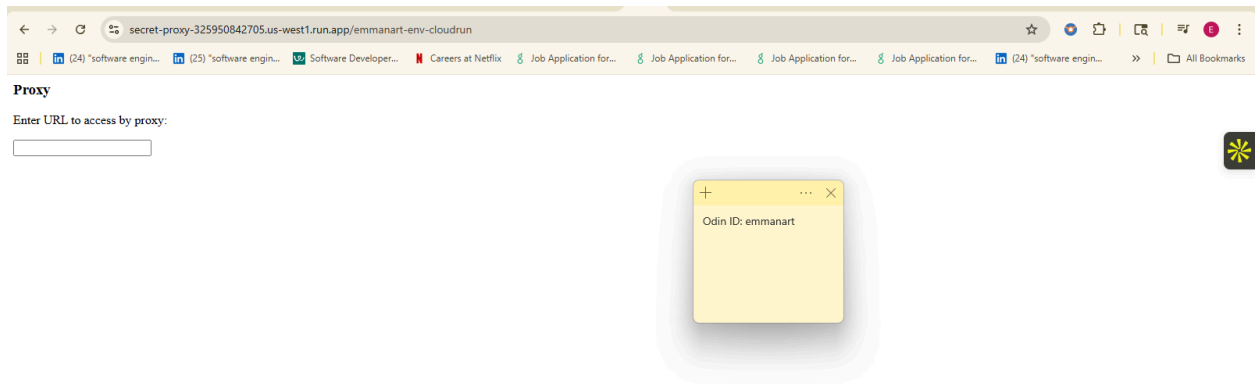
- What is the security advantage of passing in the secret proxy route as an environment variable?

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

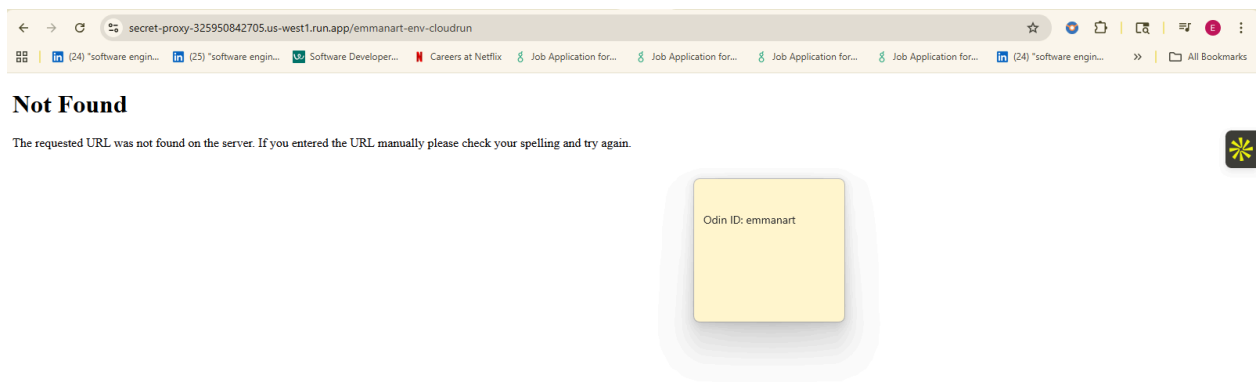
- Take a screenshot of the image in the registry that shows the size of the container for your lab notebook.



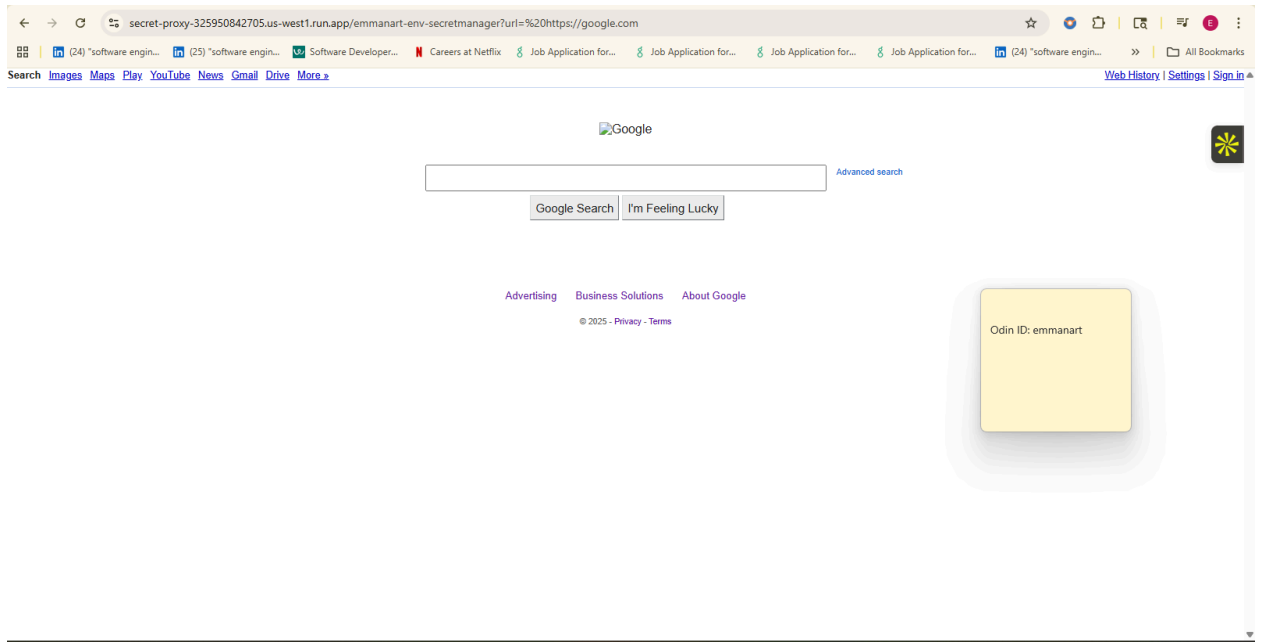
- Take a screenshot of it that includes the proxy URL for your lab notebook.



- 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.

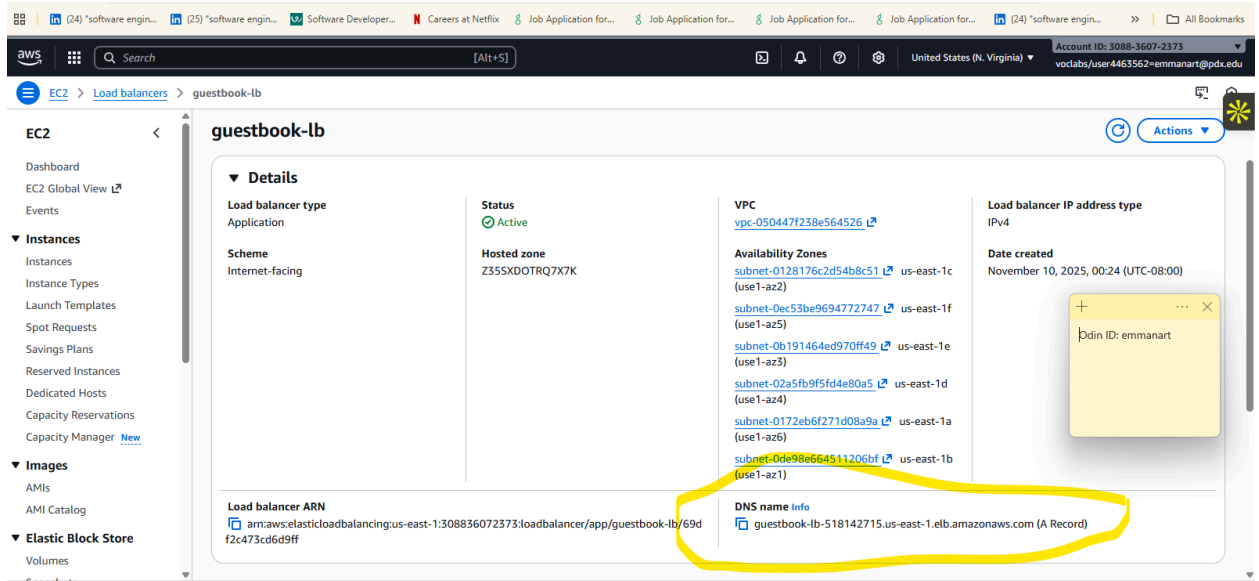


- Identify the vulnerability in your lab notebook that Google has prevented.

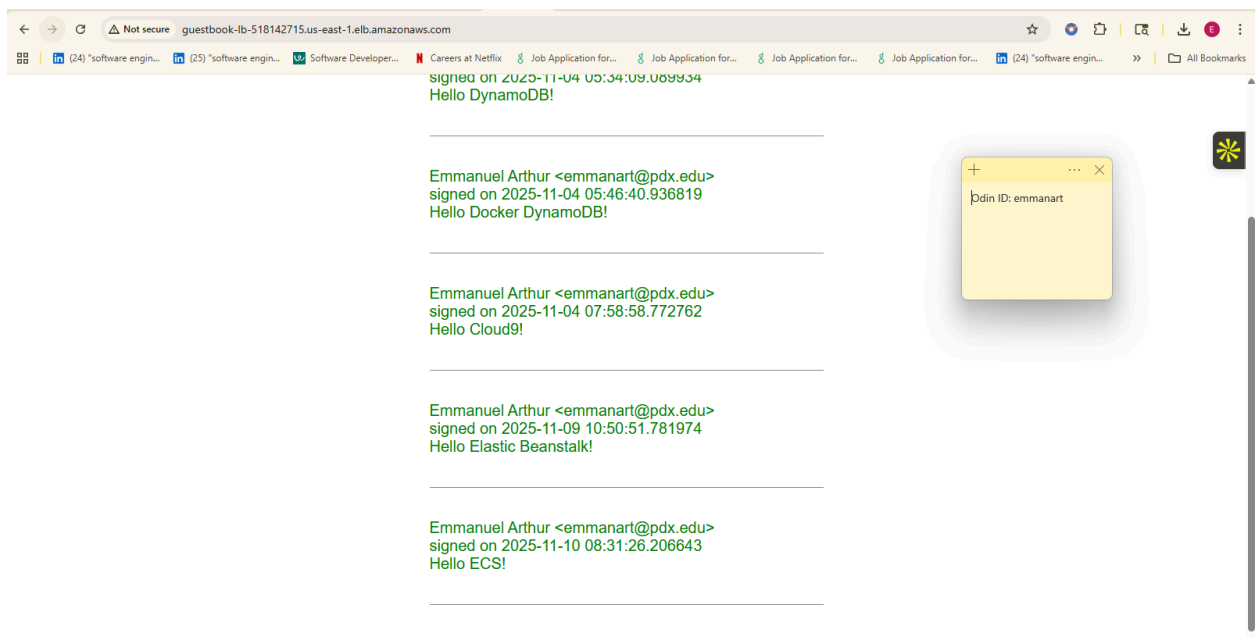
The vulnerability is Server-Side Request Forgery against the Metadata Service, which could expose service account tokens and allow privilege escalation. In response Google has created a container runtime sandbox that blocks all access to the metadata service (169.254.169.254) from within deployed containers. 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



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



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. At the top, the build is marked as 'Successful: 1ef81ade-9f7b-43bd-8079-fcfc9f5c4760'. Below this, a 'Build Summary' table shows the build steps and their durations. The 'Build log' tab is selected, displaying the execution details. A yellow sticky note with 'Odin ID: emmanart' is placed over the build log. The right sidebar contains recommended resources like 'Build configuration overview', 'Quickstart', and 'Architecture guides for application development'.

Steps	Duration
Build Summary	00:04:32
1 Step	
0: gcr.io/cloud-builders/gcb-internal-docker-build-network cloudbuild --...	00:01:38

Build Summary

Build log Execution details Build artifacts

☐ Wrap lines ☐ Show newest entries first

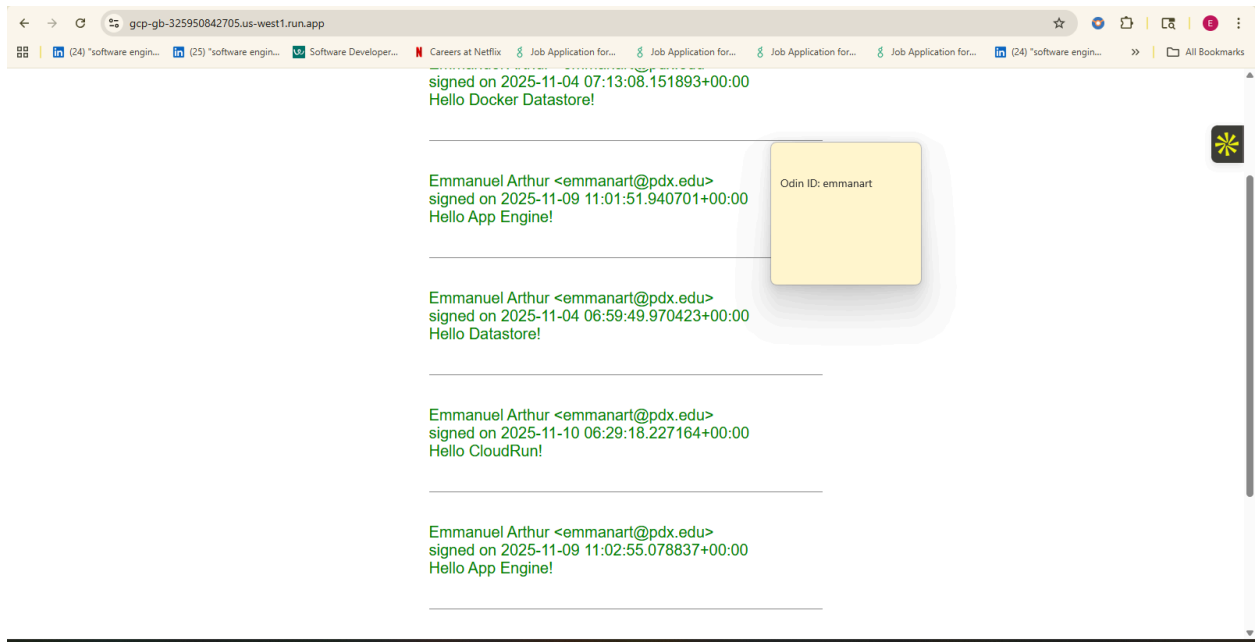
```
1 starting build "1ef81ade-9f7b-43bd-8079-fcfc9f5c4760"
2
3 FETCHSOURCE
4 Fetching storage object: gs://cloud-arthur-emmanart-cloudbuild/source/1762755101.617189-87652e6c5aa4a7cb34458d83389a466.tgz#17627551181
5 Copying gs://cloud-arthur-emmanart-cloudbuild/source/1762755101.617189-87652e6c5aa4a7cb34458d83389a466.tgz#17627551181 to /tmp
6 / [0 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 1/7 : FROM google/cloud-sdk
14 latest: Pulling from google/cloud-sdk
15 c081849e3c0d: Already exists
16 45e47c278fcd: Pulling fs layer
17 1b1d7a3a39dc: Pulling fs layer
18 00fabce71cc2: Pulling fs layer
19 abfe30720862: Pulling fs layer
20 e59b07c0a9f5: Pulling fs layer
21 abfe30720862: Verifying Checksum
```

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

The screenshot shows the Google Cloud Artifact Registry interface. The top bar displays the project 'cloud-arthur-emmanart' and the location 'us-west1'. The main content area shows the details for the container image '4cb6cdb435163'. The 'Overview' tab is selected, displaying a table of image properties. A yellow sticky note with 'Odin ID: emmanart' is placed over the image details. The bottom of the page shows a terminal window with the command 'cloud-run deploy --image gcp-gb --project cloud-arthur-emmanart'.

Property	Value
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	sha256:4cb6cdb435163c312c2f4adce1981e6a8c8421d3272506cfefcd74d411e26937
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	—
Artifact type	—

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

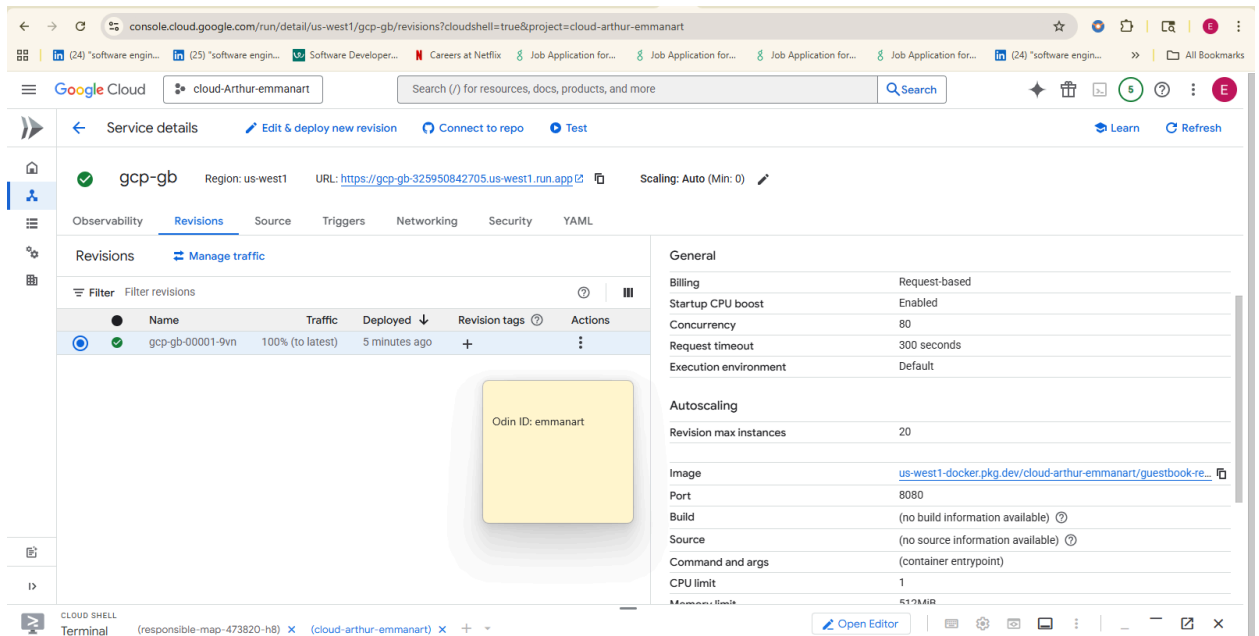


- What port do container instances listen on?

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

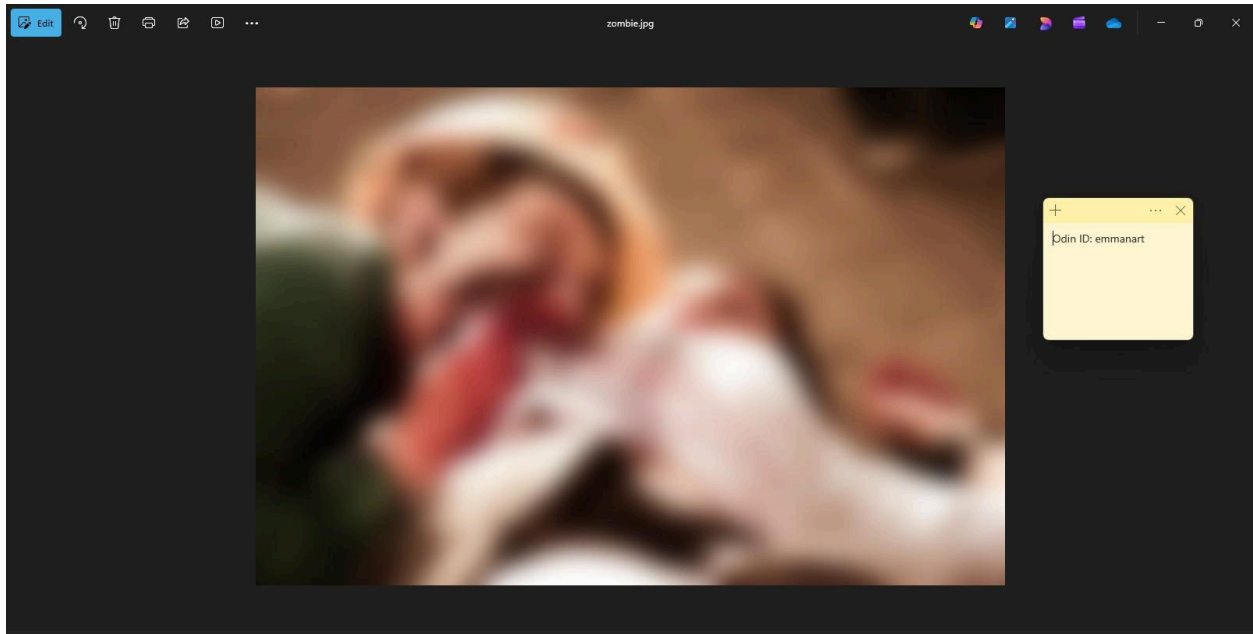
- What lines of code perform the blurring of the image and its storage back into the filesystem?

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.

```

emmanart@cloudshell:~/cs430-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:~/cs430-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 --1
init=100
LEVEL:
NAME: python-blur-function
EXECUTION_ID: ThisSLyvjSVX
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: ThisSLyvjSVX
TIME_UTC: 2025-11-10 07:21:40.928
LOG: Image zombie.jpg was blurred.

LEVEL:
NAME: python-blur-function
EXECUTION_ID: ThisSLyvjSVX
TIME_UTC: 2025-11-10 07:21:36.228
LOG: Image zombie.jpg was downloaded to /tmp/tmpsa1erbt0.

LEVEL:
NAME: python-blur-function
EXECUTION_ID: ThisSLyvjSVX
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: ThisSLyvjSVX
TIME_UTC: 2025-11-10 07:21:35.654
LOG: Analyzing zombie.jpg.

LEVEL: I
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 `messageId` of the published message?

- '16855900736776258'

```
Cloud Shell Editor
(responsible-map-473820-h8) x (cloud-arthur-emmanart) x +
Gemini CLI is available in Cloud Shell terminal! Type gemini to try it. Learn more
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:~$
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!"
messageId:
  "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!"
messageId:
  "16855900736776258"
emmanart@pubsub:~$
```

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

```
Cloud Shell Editor
(responsible-map-473820-h8) x (cloud-arthur-emmanart) x +
Gemini CLI is available in Cloud Shell terminal! Type gemini to try it. Learn more
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:~$
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!"
messageId:
  "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!"
messageId:
  "16855900736776258"
emmanart@pubsub:~$ gcloud pubsub subscriptions pull sub-${USER}
+-----+-----+-----+-----+-----+-----+
| DATA | MESSAGE_ID | ORDERING_KEY | ATTRIBUTES | DELIVERY_ATTEMPT | ACK_ID |
+-----+-----+-----+-----+-----+-----+
| Hi world! | 16855900736776258 |  |  |  | BhYxXUZIUTCZGhRDk9eIs1lChFEgABTWIoXXkwTtBmXQ8Fg0Zcm1hd3MLFVJQTAF4X1kRDWJcTgK85YmYhVIXV0tbFQKHQfp-X1wYC29bWncCWSXOm5C |
| sR6FPhs-rdf qaMtdyniHw0Z1i9XhJLLD5-NSJFQV5AEkw-F0RJ0yYDCypYEU4EISE-MDSFU0RQ |  |  |  |  |  |
+-----+-----+-----+-----+-----+-----+
emmanart@pubsub:~$
```

- Take a screenshot showing the `messageId` and messages sent

```
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 131, 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_func
    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_helper
    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 16856471477614426 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 16856065476649985 to topic projects/cloud-arthur-emmanart/topics/my_topic
Enter a message to send: it's the rainy season
Published 1685636552631011 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: []
```

- Take a screenshot showing the same `messageIds` and messages received

```
(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
(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)
Received message 16856471477614426: 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 16856065476649985: 2025-11-10 08:00:21 (projects/cloud-arthur-emmanart/topics/my_topic) : hope you are doing well
Received message 1685636552631011: 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
[]
```