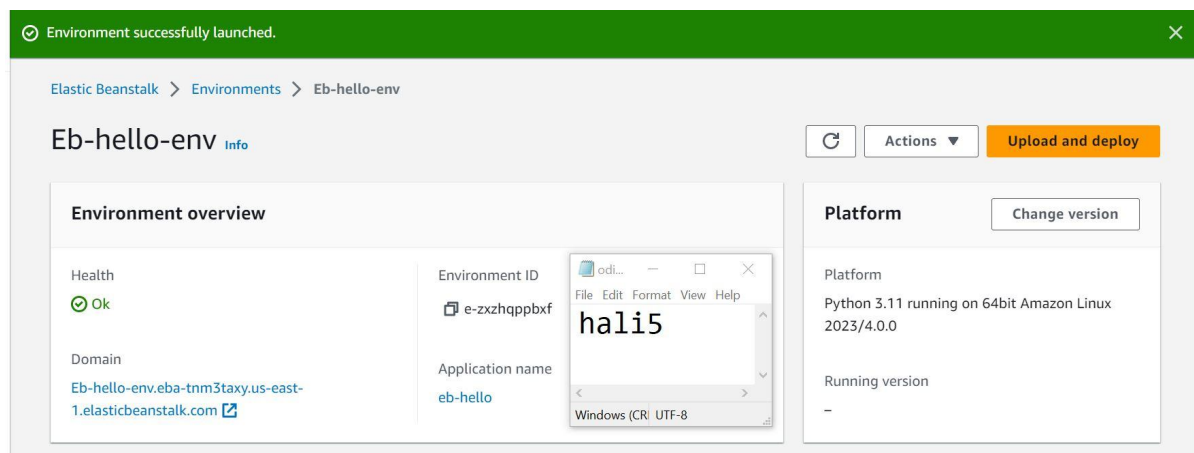


|   |           |
|---|-----------|
| <b>06.1a: EB Guestbook</b>                          | <b>1</b>  |
| Running the application                             | 1         |
| Handling failures seamlessly                        | 2         |
| Deploying the Guestbook                             | 2         |
| <b>06.1g: App Engine Guestbook</b>                  | <b>3</b>  |
| Deploying the Guestbook                             | 3         |
| Handling failures seamlessly                        | 4         |
| <b>06.2g: Cloud Run, Secret Manager (Web proxy)</b> | <b>4</b>  |
| Setup secret proxy                                  | 4         |
| Cloud Build and Container Registry                  | 5         |
| Deploy to Cloud Run                                 | 5         |
| Deploy to Cloud Run with Secret Manager             | 6         |
| <b>06.3a: ECS Guestbook</b>                         | <b>7</b>  |
| Examine the service                                 | 7         |
| <b>06.3g: Cloud Run Guestbook</b>                   | <b>8</b>  |
| View the Guestbook                                  | 9         |
| <b>06.4g: Cloud Functions, PubSub</b>               | <b>10</b> |
| Test function                                       | 11        |
| PubSub via CLI                                      | 12        |
| Test programs and clean up                          | 13        |

## 06.1a: EB Guestbook

### Running the application

Take a screenshot showing it has been brought up successfully



## Handling failures seamlessly

Take a screenshot of the replacement VM being started

The screenshot shows the AWS Management Console 'Instances' page. There are three instances listed, all named 'Eb-hello-env'. The first instance (ID: i-081209b6905ed3827) is in a 'Running' state. The second instance (ID: i-0563a82a487d5e01d) is in a 'Terminated' state. The third instance (ID: i-03fbe4d4f3a084adf) is in a 'Running' state and shows 'Initializing' status checks. A Notepad window titled 'odinID - Notepad' is open in the foreground, displaying the text 'hali5'.

| Name         | Instance ID         | Instance state | Instance type | Status check      | Alarm status | Availability Zone | Public IPv4 |
|--------------|---------------------|----------------|---------------|-------------------|--------------|-------------------|-------------|
| Eb-hello-env | i-081209b6905ed3827 | Running        | t3.micro      | 2/2 checks passed | No alarms    | us-east-1c        | ec2-44-205- |
| Eb-hello-env | i-0563a82a487d5e01d | Terminated     | t3.micro      | -                 | No alarms    | us-east-1b        | -           |
| Eb-hello-env | i-03fbe4d4f3a084adf | Running        | t3.micro      | Initializing      | No alarms    | us-east-1a        | ec2-35-172- |

## Deploying the Guestbook

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

The screenshot shows a web browser window with the URL 'guestbook-env.eba-edek7h3t.us-east-1.elasticbeanstalk.com'. The page displays two entries in a guestbook, each signed by 'Hali Tran <hali5@pdx.edu>'. The first entry is signed on '2023-05-06 05:49:40.954416' and says 'Hello EC2!'. The second entry is signed on '2023-05-10 06:44:36.765116' and says 'Hello Elastic Beanstalk!'.

Not secure | guestbook-env.eba-edek7h3t.us-east-1.elasticbeanstalk.com.

Resource Back-End Resource Portland State Univ... GitHub public-apis/public-...

Hali Tran <hali5@pdx.edu>  
signed on 2023-05-06 05:49:40.954416  
Hello EC2!

Hali Tran <hali5@pdx.edu>  
signed on 2023-05-10 06:44:36.765116  
Hello Elastic Beanstalk!

Take a screenshot of them.

The screenshot shows the AWS Management Console 'Instances' page. A search filter 'Instance state = running' is applied. Three instances are listed, all with a state of 'Running' and '2/2 checks passed'.

|                          | Name          | Instance ID         | Instance state | Instance type | Status check      | Alarm status | Availability Zone | Public IPv4  |
|--------------------------|---------------|---------------------|----------------|---------------|-------------------|--------------|-------------------|--------------|
| <input type="checkbox"/> | guestbook-env | i-0ff327fb1e736f06a | Running        | t3.micro      | 2/2 checks passed | No alarms    | us-east-1a        | ec2-3-87-91- |
| <input type="checkbox"/> | guestbook-env | i-05e271573f3940a61 | Running        | t3.micro      | 2/2 checks passed | No alarms    | us-east-1c        | ec2-3-91-19- |
| <input type="checkbox"/> | guestbook-env | i-0930487c25bab7596 | Running        | t3.micro      | 2/2 checks passed | No alarms    | us-east-1b        | ec2-54-172-  |

## 06.1g: App Engine Guestbook

### Deploying the Guestbook

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

The screenshot shows a web browser with the URL `cloud-tran-hali5.wl.r.appspot.com`. The page content displays a green message from Hali Tran, signed on 2023-05-11 01:50:33.562951+00:00, saying 'Hello App Engine!'. Below this, there is a second, identical message signed on 2023-05-06 07:45:33.255212+00:00, saying 'Hello Compute Engine!'.

---

Hali Tran <hali5@pdx.edu>  
signed on 2023-05-11 01:50:33.562951+00:00  
Hello App Engine!

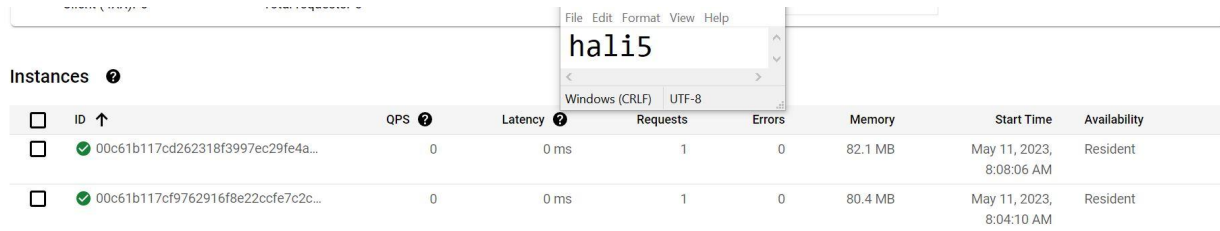
---

Hali Tran <hali5@pdx.edu>  
signed on 2023-05-06 07:45:33.255212+00:00  
Hello Compute Engine!

---

## Handling failures seamlessly

Take a screenshot of them



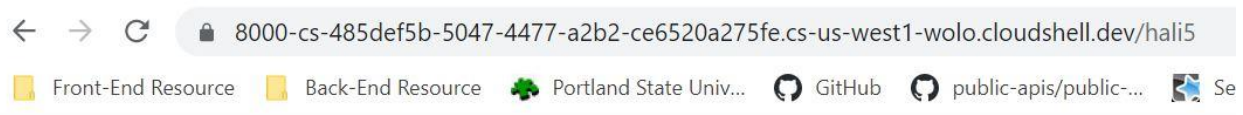
The screenshot shows a web application interface. At the top, there is a text input field with the value "hali5". Below this, there is a table titled "Instances" with a help icon. The table has columns: ID, QPS, Latency, Requests, Errors, Memory, Start Time, and Availability. There are two rows of data, both with a green checkmark in the ID column, indicating they are running. The first row has an ID ending in "29fe4a...", 0 QPS, 0 ms latency, 1 request, 0 errors, 82.1 MB memory, and started at 8:08:06 AM. The second row has an ID ending in "7c2c...", 0 QPS, 0 ms latency, 1 request, 0 errors, 80.4 MB memory, and started at 8:04:10 AM.

| ID                                 | QPS | Latency | Requests | Errors | Memory  | Start Time               | Availability |
|------------------------------------|-----|---------|----------|--------|---------|--------------------------|--------------|
| 00c61b117cd262318f3997ec29fe4a...  | 0   | 0 ms    | 1        | 0      | 82.1 MB | May 11, 2023, 8:08:06 AM | Resident     |
| 00c61b117cf9762916f8e22ccfe7c2c... | 0   | 0 ms    | 1        | 0      | 80.4 MB | May 11, 2023, 8:04:10 AM | Resident     |

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

### Setup secret proxy

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



### Proxy

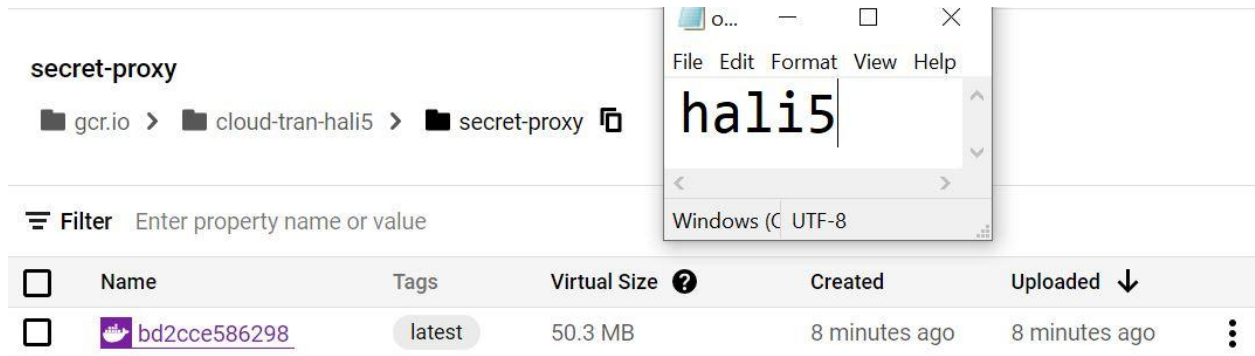
Enter URL to access by proxy:

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

The security advantage of passing in the secret proxy route as an environment variable is that it prevents the route from being hardcoded in the application code. Since environment variables are stored outside of the application code, it can prevent theft or loss of sensitive information if users who shouldn't have access get their hands on the application code.

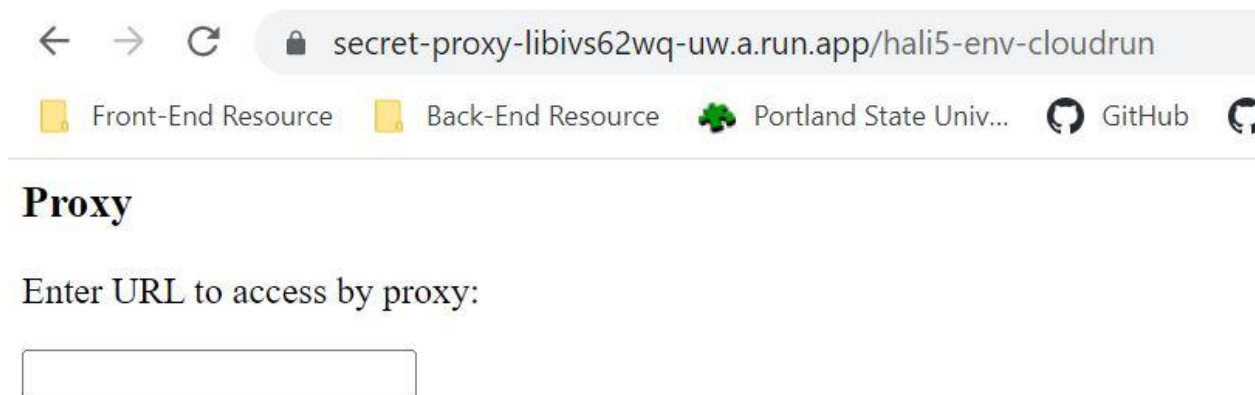
## Cloud Build and Container Registry

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



## 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.

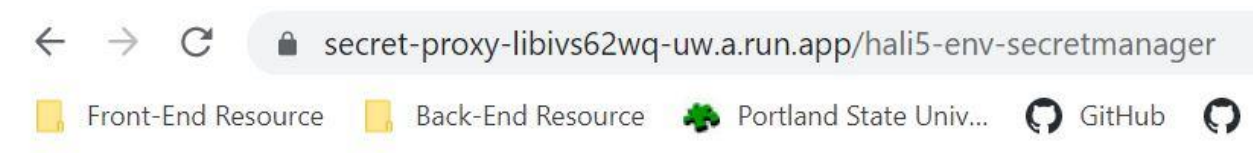


## Not Found

The requested URL was not found on the server. If you entered the URL manually please check your spelling and try again.

### Deploy to Cloud Run with Secret Manager

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



## Proxy

Enter URL to access by proxy:

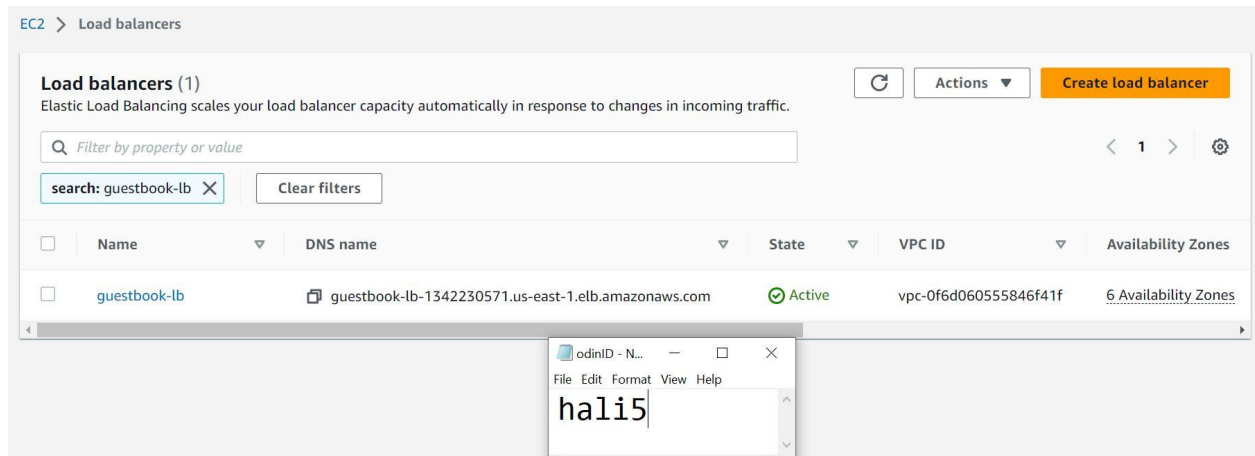
Identify the vulnerability in your lab notebook that Google has prevented.

The vulnerability that Google was able to prevent was unauthorized access to the Virtual Machine that runs the container by limiting access to Google Cloud Platform Services. Using this, Google prevents unauthorized access to VM's metadata and overall prevents exploitation of server side request forgery bugs and exploits.

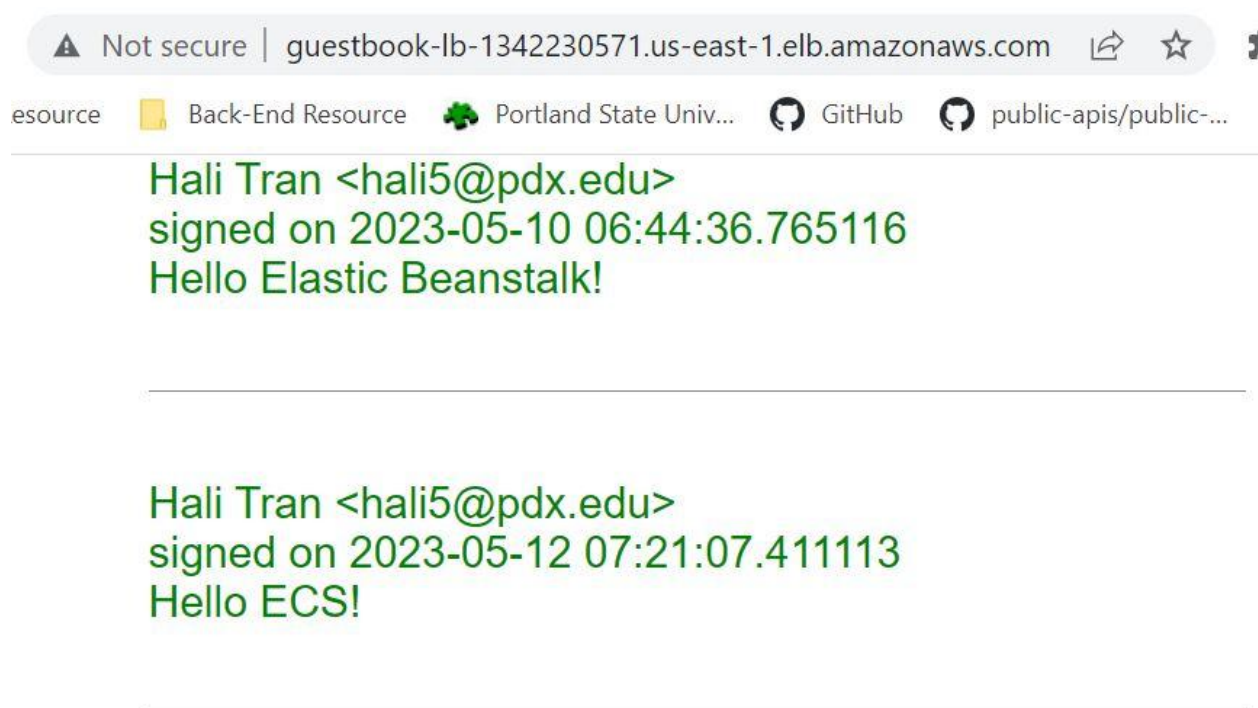
## 06.3a: ECS Guestbook

### Examine the service

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



## 06.3g: Cloud Run Guestbook

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







## Guestbook

Sign [here](#)

### Entries

Hali Tran <hali5@pdx.edu>  
signed on 2023-05-12 05:37:37.403840+00:00  
Hello Cloud Run!

### What port do container instances listen on?

Container instances on Cloud Run listen on port 8080

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

The maximum number of instances Cloud Run will autoscale up is 100 instances.

## 06.4g: Cloud Functions, PubSub

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

After downloading the file from the bucket, the file is stored in a temporary file and the path to this temporary file is stored in a variable named `temp_local_filename`.

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

The class in the ImageMagick package that is used to blur the file is *blur*.

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

The lines of code that perform the blurring of the image and its storage back in the filesystem are lines 73 and 74, as shown below.

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

## Test function

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

The screenshot displays the Google Cloud Storage interface for the bucket 'cloud-Tran-hali5'. The selected object is 'zombie-949916\_1280.jpg' in the 'cloud-function-lab-blur' bucket. The object details show it is a 116.6 KB file created on May 12, 2023, at 5:16:57 PM, with a standard storage class. The public URL is [https://storage.cloud.google.com/cloud-function-lab-blur/zombie-949916\\_1280.jpg](https://storage.cloud.google.com/cloud-function-lab-blur/zombie-949916_1280.jpg). The permissions section indicates that public access is not enabled. The protection section shows that version history, retention policy, and hold status are all set to 'None', and the encryption type is 'Google-managed key'.

Next to the details is a preview of the image, which is a blurred screenshot of a person in a yellow hard hat and green jacket. Below the preview is a small window titled 'hali5' showing the text 'hali5' in a monospace font, with a 'Window: UTF-8' indicator at the bottom.

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

```
LEVEL: I
NAME: blur_offensive_images
EXECUTION_ID: qj7piq7o6cgx
TIME.UTC: 2023-05-13 00:16:57.071
LOG: Image zombie-949916_1280.jpg was blurred.

LEVEL: I
NAME: blur_offensive_images
EXECUTION_ID: qj7piq7o6cgx
TIME.UTC: 2023-05-13 00:16:55.585
LOG:

LEVEL: I
NAME: blur_offensive_images
EXECUTION_ID: qj7piq7o6cgx
TIME.UTC: 2023-05-13 00:16:55.585
LOG: Image zombie-949916_1280.jpg was downloaded to /tmp/tmpzwrben7.

LEVEL: I
NAME: blur_offensive_images
EXECUTION_ID: qj7piq7o6cgx
TIME.UTC: 2023-05-13 00:16:55.483
LOG:

LEVEL: I
NAME: blur_offensive_images
EXECUTION_ID: qj7piq7o6cgx
TIME.UTC: 2023-05-13 00:16:55.483
LOG: The image zombie-949916_1280.jpg was detected as inappropriate.

LEVEL: I
NAME: blur_offensive_images
EXECUTION_ID: qj7piq7o6cgx
TIME.UTC: 2023-05-13 00:16:55.153
LOG:

LEVEL: I
NAME: blur_offensive_images
EXECUTION_ID: qj7piq7o6cgx
TIME.UTC: 2023-05-13 00:16:55.153
LOG: Analyzing zombie-949916_1280.jpg.

LEVEL: D
NAME: blur_offensive_images
EXECUTION_ID: qj7piq7o6cgx
TIME.UTC: 2023-05-13 00:16:52.292
LOG: Function execution started
hali5@cloudshell:~ (cloud-tran-hali5) $
```

## PubSub via CLI

### Why are there no items returned?

No items are returned because the subscriber subscribed to the topic after the publisher already published the message. Therefore, all the old messages are not available to the new subscriber and in this case, it would not receive message 1.

### What is the messageId of the published message?

The messageId of the published message was 7695357516379329

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

```
hali5@pubsub:~$ gcloud pubsub subscriptions pull sub-$USER
```

| DATA   | MESSAGE_ID       | ORDERING_KEY | ATTRIBUTES | DELIVERY_ATTEMPT | ACK_ID |
|--|------------------|--------------|------------|------------------|--------|
| Message #2   | 7695357516379329 |              |            |                  |        |
| oRRIGCBQFfHlyW0V1WDN1B1ENGXN1aXR0CBEEBUNQdF9RGx9ZXETd-5qfL1BdZnNjXxAEBUBSeFxcEg5qVXTe5NXj2JCYXG9WYrv9yddlXpy-q5pbZiE9XxJLLD5-NTBFQV5AEkw-BURJUytDCypYEU4EISE-MD4 |                  |              |            |                  |        |
|  |                  |              |            |                  |        |

Test programs and clean up

**Take a screenshot showing the messageIds and messages sent**

```
(env) hali5@cloudshell:~ (cloud-tran-hali5)$ python3 publisher.py
Enter a message to send: Message 1
Published 7695520208415101 to topic projects/cloud-tran-hali5/topics/my_topic
Enter a message to send: Message 2
Published 7695588916338700 to topic projects/cloud-tran-hali5/topics/my_topic
Enter a message to send: Message 3
Published 7695585139380117 to topic projects/cloud-tran-hali5/topics/my_topic
Enter a message to send: Message 4
Published 7695515749413326 to topic projects/cloud-tran-hali5/topics/my_topic
Enter a message to send: █
```

**Take a screenshot showing the same messageIds and messages received**

```
Received message 7695520208415101: 2023-05-13 01:45:26 (projects/cloud-tran-hali5/topics/my_topic) : Message 1
Received message 7695588916338700: 2023-05-13 01:45:31 (projects/cloud-tran-hali5/topics/my_topic) : Message 2
Received message 7695585139380117: 2023-05-13 01:45:37 (projects/cloud-tran-hali5/topics/my_topic) : Message 3
Received message 7695515749413326: 2023-05-13 01:45:39 (projects/cloud-tran-hali5/topics/my_topic) : Message 4
```