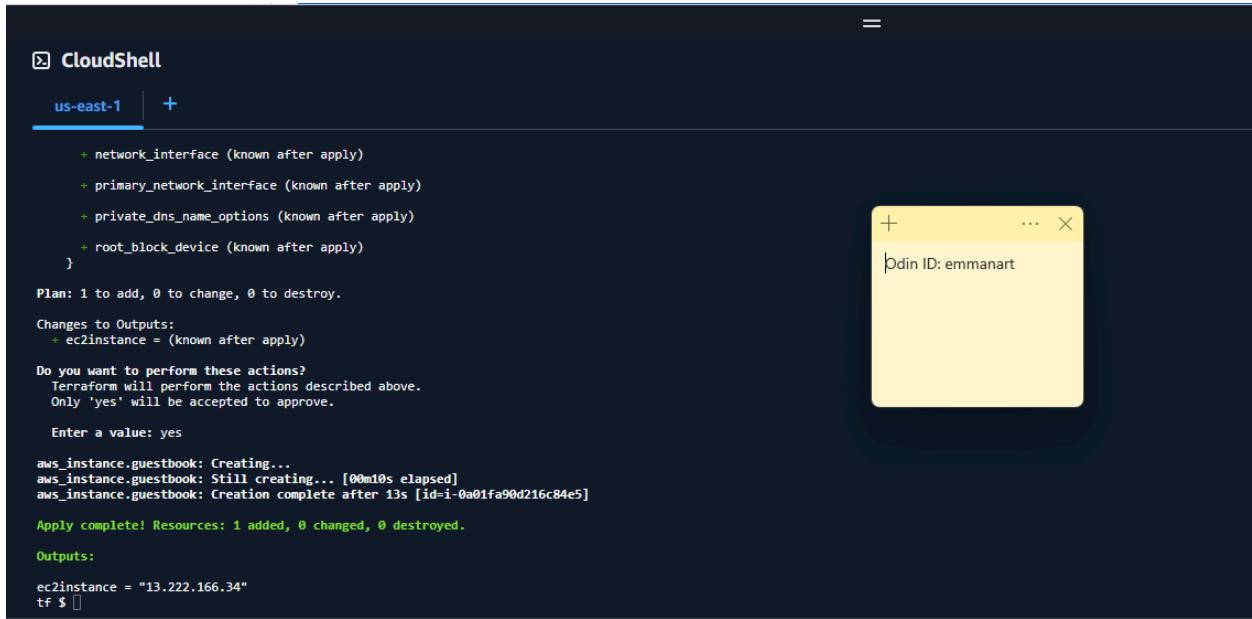


## Lab 7.1 a

- Take a screenshot showing the completion of the command including its output



The screenshot shows a CloudShell terminal window for the 'us-east-1' region. The terminal displays the output of a Terraform 'apply' command. The output includes:

- A plan section showing 1 resource to add.
- Changes to Outputs: 'ec2instance' is set to '(known after apply)'.
- A confirmation prompt asking if the user wants to perform the actions, stating 'Terraform will perform the actions described above. Only 'yes' will be accepted to approve.'
- An 'Enter a value: yes' prompt.
- The execution of the 'aws\_instance.guestbook' resource, showing it creating and then becoming 'Creation complete'.
- The final message 'Apply complete! Resources: 1 added, 0 changed, 0 destroyed.'
- The output section showing 'ec2instance = "13.222.166.34"'.
- The command 'tf \$ []' at the bottom.

To the right of the terminal, there is a small yellow sticky note with the text 'Odin ID: emmanart'.

- Take a screenshot that includes the VM's IP addresses

The screenshot shows the AWS CloudShell interface for the us-east-1 region. The terminal window displays the following command and output:

```
aws_instance.guestbook: Creating...
aws_instance.guestbook: Still creating... [0m10s elapsed]
aws_instance.guestbook: Creation complete after 13s [id=i-0a01fa90d216c84e5]

Apply complete! Resources: 1 added, 0 changed, 0 destroyed.

Outputs:
ec2instance = "13.222.166.34"
ts $
```

A yellow box highlights the terminal window, and another yellow box highlights the public IP address "13.222.166.34" in the Instance summary section of the main EC2 page.

- Take a screenshot of the successful ssh login from Cloud Shell.

The screenshot shows the AWS CloudShell interface for the us-east-1 region. The terminal window displays the following command and output:

```
aws_key_pair_kp: Creating...
aws_security_group_sg-guestbook: Creating...
aws_key_pair_kp: creation complete after 1s [id=guestbook-key]
aws_security_group_sg-guestbook: Creation complete after 3s [id=sg-042351452f0f6bb85]
aws_instance.guestbook: Creating...
aws_instance.guestbook: Still creating... [0m10s elapsed]
aws_instance.guestbook: Creation complete after 13s [id=i-0d9491a5010bd683e]

Apply complete! Resources: 3 added, 0 changed, 1 destroyed.

Outputs:
ec2instance = "13.218.127.211"
ts $ ssh ubuntu@13.218.127.211
The authenticity of host '13.218.127.211 (13.218.127.211)' can't be established.
ED25519 key fingerprint is SHA256:OnYRKE/tUrsDVVFJUpy/25t4dG16nQdZsyIKHajc5I.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[Fingerprint])? yes
Warning: Permanently added '13.218.127.211' (ED25519) to the list of known hosts.
Welcome to Ubuntu 22.04.5 LTS (GNU/Linux 6.8.0-1039-aws x86_64)

 * Documentation: https://help.ubuntu.com
 * Management: https://landscape.canonical.com
 * Support: https://ubuntu.com/pro

System information as of Wed Nov 12 19:59:47 UTC 2025

 System load: 0.03      Processor:          196
 Usage of /: 22.6% of 7.57GB   Users logged in:    0
 Memory usage: 22%          IPv4 address for eth0: 172.31.17.87
 Swap usage:  0%
```

A yellow box highlights the terminal window, and another yellow box highlights the public IP address "13.218.127.211" in the Instance summary section of the main EC2 page.

```

aws key fingerprint is >M4QD:UWYHKK:EURSUVRzumpy>t4qj0nuaL5y1krhjC>.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '13.218.127.211' (ED05519) to the list of known hosts.
Welcome to Ubuntu 22.04.5 LTS (GNU/Linux 6.8.0-1039-aws x86_64)

 * Documentation: https://help.ubuntu.com
 * Management: https://landscape.canonical.com
 * Support: https://ubuntu.com/pro

System information as of Wed Nov 12 19:59:47 UTC 2025

System load: 0.03 Processes: 106
Usage of /: 22.6% of 7.57GB Users logged in: 0
Memory usage: 22% IPv4 address for eth0: 172.31.17.87
Swap usage: 0B

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.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-17-87:~$ []

```

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- Take a screenshot of the output of the command that includes the IP address of the instance

```

aws key_pair: Creating...
aws_security_group_sg-guestbook: Creating...
aws_key_pair_kp: Creation complete after 1s [id=guestbook-key]
aws_security_group_sg-guestbook: Creation complete after 3s [id=sg-8b047049b53bf12ad]
aws_instance_guestbook: Creating...
aws_instance_guestbook: Still creating... (0m10s elapsed)
aws_instance_guestbook: Creation complete after 13s [id=i-07e8f7c2fdcc44e4a]

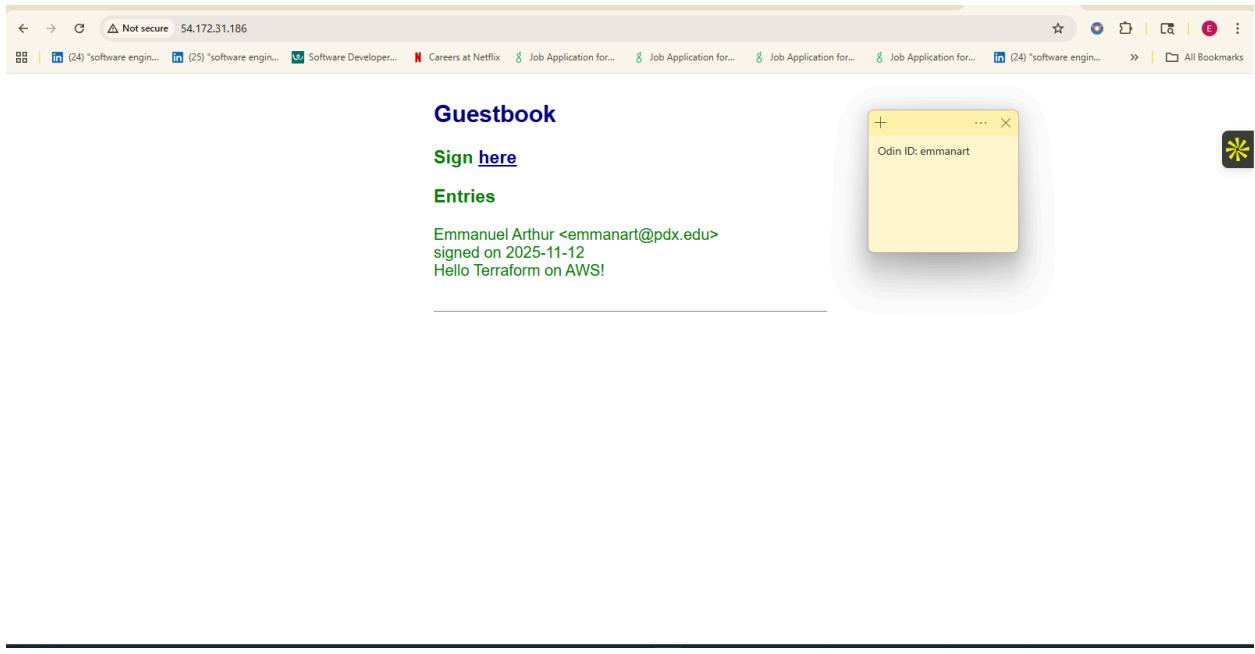
Apply complete! Resources: 3 added, 0 changed, 0 destroyed.

Outputs:
ec2instance = "54.172.31.186"
tf $ []

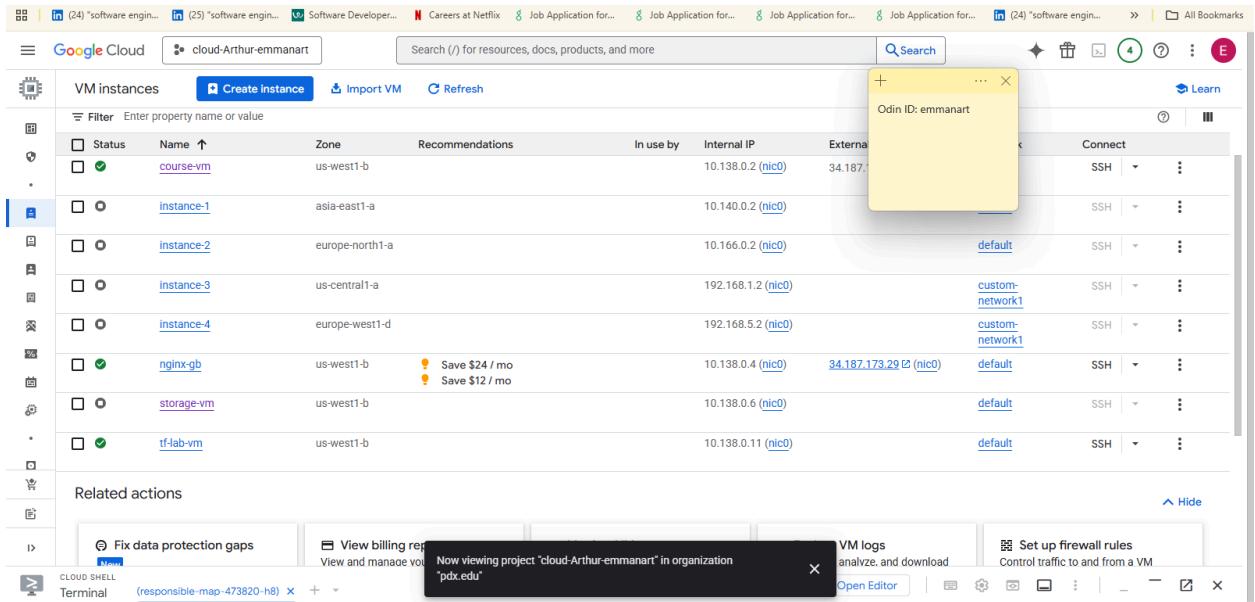
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```

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



- Take a screenshot that includes the VM's IP addresses



- Take a screenshot showing the completion of the command including its output

```

Cloud Shell Editor
File Edit Selection View Go Run Terminal Help emmanart
EXPLORER ... model_datastore.py M main.tf ...
EMMANART tf > main.tf ...
(cloud-arthur-emmanart) + ...
Gemini CLI is available in Cloud Shell terminal! Type gemini to try it. Learn more
+ Odin ID: emmanart
Don't show again Dismiss

access_config {
  nat_ip = (known after apply)
}

# (3 unchanged blocks hidden)

Plan: 1 to add, 1 to change, 0 to destroy.

Changes to Outputs:
  * ip = (known after apply)

Do you want to perform these actions?
Terraform will perform the actions described above.
Only 'yes' will be accepted to approve.

Enter a value: yes

google_compute_address.static: Creating...
google_compute_address.static: Still creating... [10s elapsed]
google_compute_address.static: Creation complete after 10s [id=projects/cloud-arthur-emmanart/regions/us-west1/addresses/ipv4-address]
google_compute_instance.default: Modifying... [id=projects/cloud-arthur-emmanart/zones/us-west1-b/instances/tf-lab-vm]
google_compute_instance.default: Still modifying... [id=projects/cloud-arthur-emmanart/zones/us-west1-b/instances/tf-lab-vm, 10s elapsed]
google_compute_instance.default: Modifications complete after 10s [id=projects/cloud-arthur-emmanart/zones/us-west1-b/instances/tf-lab-vm]

Apply complete! Resources: 1 added, 1 changed, 0 destroyed.

Outputs:
ip = "136.117.52.160"
emmanart@cloudshell:~/tf (cloud-arthur-emmanart)$ 

```

- Take a screenshot that includes the VM's IP addresses

| Status                              | Name       | Zone            | Recommendations                  | In use by | Internal IP        | External IP           | Network         | Connect |
|-------------------------------------|------------|-----------------|----------------------------------|-----------|--------------------|-----------------------|-----------------|---------|
| <input checked="" type="checkbox"/> | course-vm  | us-west1-b      |                                  |           | 10.138.0.2 (nic0)  | 34.187.138.60 (nic0)  | default         | SSH     |
| <input type="checkbox"/>            | instance-1 | asia-east1-a    |                                  |           | 10.140.0.2 (nic0)  |                       | default         | SSH     |
| <input type="checkbox"/>            | instance-2 | europe-north1-a |                                  |           | 10.166.0.2 (nic0)  |                       | default         | SSH     |
| <input type="checkbox"/>            | instance-3 | us-central1-a   |                                  |           | 192.168.1.2 (nic0) |                       | custom-network1 | SSH     |
| <input type="checkbox"/>            | instance-4 | europe-west1-d  |                                  |           | 192.168.5.2 (nic0) |                       | custom-network1 | SSH     |
| <input checked="" type="checkbox"/> | nginx-gb   | us-west1-b      | Save \$24 / mo<br>Save \$12 / mo |           | 10.138.0.4 (nic0)  | 34.187.173.29 (nic0)  | default         | SSH     |
| <input type="checkbox"/>            | storage-vm | us-west1-b      |                                  |           | 10.138.0.6 (nic0)  |                       | default         | SSH     |
| <input checked="" type="checkbox"/> | tf-lab-vm  | us-west1-b      |                                  |           | 10.138.0.11 (nic0) | 136.117.52.160 (nic0) | default         | SSH     |

- Take a screenshot of the successful ssh login from Cloud Shell.

The screenshot shows a Cloud Shell terminal window. The terminal output includes system information, a note about available updates, and a failure to automatically attach to an Ubuntu Pro subscription. A yellow sticky note is overlaid on the terminal, containing the text "Odin ID: emmanart".

```

ip = "136.117.52.160"
emmanart@cloudshell:~/tf (cloud-arthur-emmanart)$ ssh 136.117.52.160
Welcome to Ubuntu 20.04.6 LTS (GNU/Linux 5.4.0-1021-gcp-fips x86_64)

 * Documentation: https://help.ubuntu.com
 * Management: https://landscape.canonical.com
 * Support: https://ubuntu.com/pro

System information as of Thu Nov 13 19:37:58 UTC 2025

System load: 0.0      Processes:           118
Usage of /: 20.4% of 9.52GB  Users logged in: 0
Memory usage: 6%
Swap usage:  0%

Expanded Security Maintenance for Infrastructure is enabled.

0 updates can be applied immediately.

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

Failed to automatically attach to an Ubuntu Pro subscription 2 time(s).
The failure was due to: "An error occurred while talking to the cloud metadata service: 404 - {"error":"invalid_request","error_description":"Service account not enabled on this instance"}".
The next attempt is scheduled for 2025-11-13T19:46:00+00:00.
You can try manually with 'sudo pro auto-attach'.

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@tf-lab-vm:~$ []

```

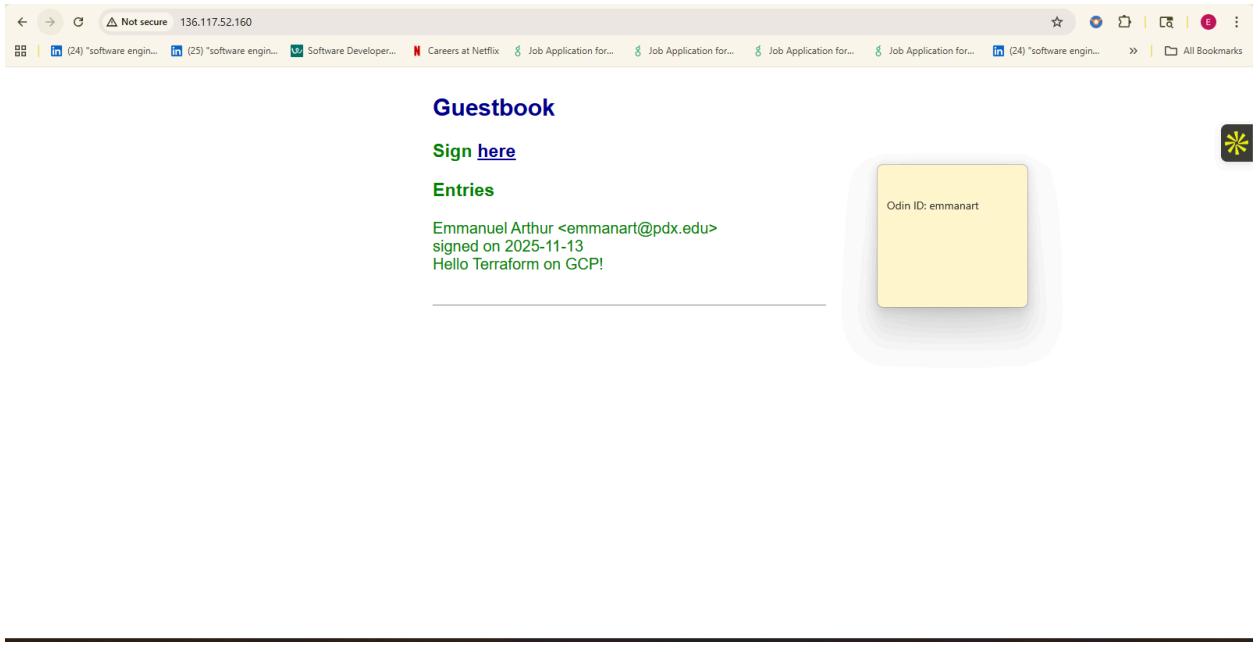
- What resources are being added, changed, or destroyed?

The `google_compute_instance.default` resource is being replaced (destroyed and recreated). No new standalone resources are being added. The replacement is triggered because the `metadata_startup_script` field was added, and this field forces Terraform to recreate the entire VM instead of updating it in place.

- What part of the configuration forces a replacement to occur?

The addition of the `metadata_startup_script` field forces the replacement.

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



### Lab 7.2g

- What is the name of the Instance Template dynamically generated to create the two nodes (VMs)?

gke-guestbook-default-pool-b823f3e2

- What is the name of the Instance Group dynamically generated that the two nodes belong to?

gke-guestbook-default-pool-b823f3e2-grp

- What are the names of the two nodes?

gke-guestbook-default-pool-b823f3e2-mnv2 and

gke-guestbook-default-pool-b823f3e2-pxwq

- Take a screenshot of the container image created

- Take a screenshot of the output of the following command when all 3 replicas reach a "Running" state.

```

=> [3/4] WORKDIR /app
=> [4/4] RUN apt-get update -y && apt-get install -y python3-pip python3-venv && python3 -m venv /env && /env/bin/pip install --no-cache-dir -r requirements.txt
=> Exporting to image
=> Using default tag: latest
=> Writing image sha256:35b9ac9792bd97b94eb30c680793967030d3719fd2efcf28fcfa071420f6fc2
=> naming to gcr.io/cloud-arthur-emmanart/gcp_gb

1 warning found (use docker --debug to expand):
- JSONMapFromCommand: JSON arguments recommended for CMD to prevent unintended behavior related to OS signals (line 21)
emmanart@cloudshell:/cs430-src/05_gcp_datastore (cloud-arthur-emmanart)$ docker push gcr.io/${GOOGLE_CLOUD_PROJECT}/gcp_gb
Using default tag: latest
The push refers to repository [gcr.io/cloud-arthur-emmanart/gcp_gb]
f616bc958f6: Pushed
5f700f18a086: Pushed
348680b0ef: Pushed
8e215100ff: Layer already exists
8a0261c81595: Layer already exists
2ade6c6d655a: Layer already exists
125a03a0e5a8: Layer already exists
7d7a2f20a40: Layer already exists
r5cd5b5cf808: Layer already exists
1a2a5554b114746addfb4f495670f6f256f4379a020e79e6cbe2ca51d2f5299966e93b4 size: 2210
emmanart@cloudshell:/cs430-src/05_gcp_datastore (cloud-arthur-emmanart)$ ls
app.py app.yaml Dockerfile env.gcloud index.py kubernetes.yaml pyache python-docs-samples requirements.txt secret-proxy sign.py static templates
emmanart@cloudshell:/cs430-src/05_gcp_datastore (cloud-arthur-emmanart)$ nano kubernetes.yaml
emmanart@cloudshell:/cs430-src/05_gcp_datastore (cloud-arthur-emmanart)$ gcloud container clusters get-credentials questionbook --zone us-west1-b
Fetching cluster endpoint for cluster...
emmanart@cloudshell:/cs430-src/05_gcp_datastore (cloud-arthur-emmanart)$ kubectl create -f kubernetes.yaml
replicationcontroller/questionbook-replicas created
service/questionbook-lb created
emmanart@cloudshell:/cs430-src/05_gcp_datastore (cloud-arthur-emmanart)$ kubectl get pods
NAME READY STATUS RESTARTS AGE
questionbook-replicas-hm6dx 1/1 ContainerCreating 0 19s
questionbook-replicas-jbv53 0/1 ContainerCreating 0 20s
questionbook-replicas-tkkd6 0/1 ContainerCreating 0 19s
emmanart@cloudshell:/cs430-src/05_gcp_datastore (cloud-arthur-emmanart)$ kubectl get pods
NAME READY STATUS RESTARTS AGE
questionbook-replicas-hm6dx 1/1 Running 0 2m14s
questionbook-replicas-jbv53 0/1 Running 0 2m14s
questionbook-replicas-tkkd6 1/1 Running 0 2m15s
emmanart@cloudshell:/cs430-src/05_gcp_datastore (cloud-arthur-emmanart)$

```

- Take a screenshot of listing services with LoadBalancer indicating an external IP address that is ready for access.

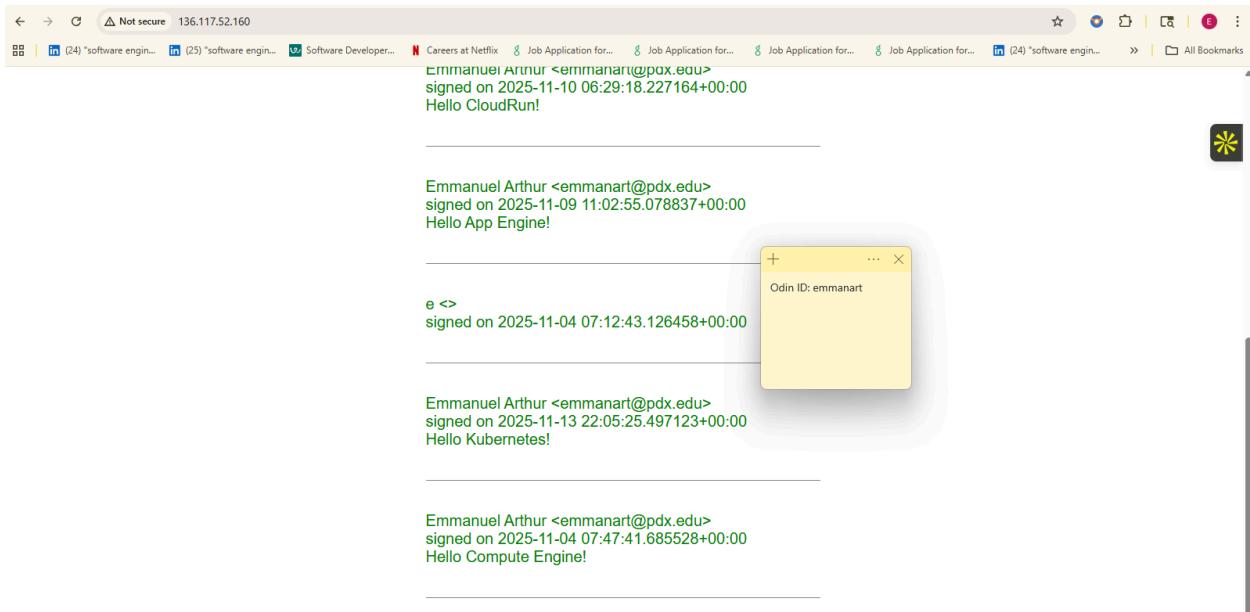
```

    => => writing image sha256:35 Open a new tab with project... 793967030d3719fd2efcf28fcfa071420f6fc2
    => => naming to gcr.io/cloud-arthur-emmanart/gcp_gb

1 warning found (use docker --debug to expand):
- JSONArgsRecommended: JSON arguments recommended for CMD to prevent unintended behavior related to OS signals (line 21)
emmanart@cloudshell:~/cs430-src/05_gcp_datastore (cloud-arthur-emmanart)$ docker push gcr.io/${GOOGLE_CLOUD_PROJECT}/gcp_gb
Using default tag: latest
The push refers to repository [gcr.io/cloud-arthur-emmanart/gcp_gb]
f616baea958fe: Pushed
5f70bbf18a08e: Pushed
348ed94bd4def: Pushed
89fe21dbcb0c: Layer already exists
8a0d0a0a5951: Layer already exists
2ade606d5a: Layer already exists
125a03a06a58: Layer already exists
7d7a22f20aa40: Layer already exists
f5c0b5cf5609: Layer already exists
latest: digest: sha256:4b1247e89dddeafbf4f95570f663564379a020e79ecbe2c51d2f5299966e93b4 size: 2210
emmanart@cloudshell:~/cs430-src/05_gcp_datastore (cloud-arthur-emmanart)$ ls
app.py app.yaml Dockerfile env.gcloud index.py kubernetes.yaml pycaache python-docs-samples requirements.txt static templates
emmanart@cloudshell:~/cs430-src/05_gcp_datastore (cloud-arthur-emmanart)$ nano kubernetes.yaml
emmanart@cloudshell:~/cs430-src/05_gcp_datastore (cloud-arthur-emmanart)$ gcloud container clusters get-credentials guestbook
Fetching cluster endpoint and auth data.
kubeconfig entry generated for guestbook.
emmanart@cloudshell:~/cs430-src/05_gcp_datastore (cloud-arthur-emmanart)$ kubectl create -f kubernetes.yaml
replicationcontroller/guestbook-replicas created
emmanart@cloudshell:~/cs430-src/05_gcp_datastore (cloud-arthur-emmanart)$ kubectl get pods
NAME          READY   STATUS    RESTARTS   AGE
guestbook-replicas-hm6dx   0/1   ContainerCreating   0      19s
guestbook-replicas-jbv5p   0/1   ContainerCreating   0      20s
guestbook-replicas-tkkd6   0/1   ContainerCreating   0      19s
emmanart@cloudshell:~/cs430-src/05_gcp_datastore (cloud-arthur-emmanart)$ kubectl get pods
NAME          READY   STATUS    RESTARTS   AGE
guestbook-replicas-hm6dx   1/1   Running   0      2m15s
guestbook-replicas-jbv5p   1/1   Running   0      2m16s
guestbook-replicas-tkkd6   1/1   Running   0      2m15s
emmanart@cloudshell:~/cs430-src/05_gcp_datastore (cloud-arthur-emmanart)$ kubectl get services
NAME            TYPE           CLUSTER-IP     EXTERNAL-IP   PORT(S)        AGE
guestbook-lb   LoadBalancer   34.118.236.185  136.117.52.160  80:31940/TCP  3m51s
kubernetes     ClusterIP     34.118.224.1    <none>        443/TCP       26m
emmanart@cloudshell:~/cs430-src/05_gcp_datastore (cloud-arthur-emmanart)$ []

```

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



- Take a screenshot of the managed guestbook pods and the service being exposed.

- Take a screenshot of the load balancer and its details

- Take a screenshot of the addresses allocated and indicate the ones associated with nodes versus the one associated with the load balancer.

The screenshot shows the Google Cloud VPC Network / IP addresses page. The table lists IP addresses categorized by type: Internal IP addresses, External IP addresses, IPv4 addresses, and IPv6 addresses. The Cloud Assist panel on the right explains the 'Access type' column, which includes VM instances and GKE nodes, IP addresses used by VMs or GKE nodes, and load balancers associated with forwarding rules.

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

The screenshot shows a web browser displaying four guestbook entries:

- App Engine:** Emmanuel Arthur <emmanarl@pdx.edu> signed on 2025-11-09 11:02:55.078837+00:00 Hello App Engine!
- Kubernetes:** Emmanuel Arthur <emmanarl@pdx.edu> signed on 2025-11-13 22:05:25.497123+00:00 Hello Kubernetes!
- Cloud Build:** Emmanuel Arthur <emmanarl@pdx.edu> signed on 2025-11-13 22:36:26.095524+00:00 Hello Cloud Build!
- Compute Engine:** Emmanuel Arthur <emmanarl@pdx.edu> signed on 2025-11-04 07:47:41.685528+00:00 Hello Compute Engine!

## Lab 7.3g

- Does Google provide a Python package specifically for accessing the Knowledge Graph API?

No there are no Python packages specifically for accessing the Knowledge Graph API

- Show the source line that constructs the query we wish to send to the Knowledge Graph API.

```
req = kgsearch.entities().search(query=query, limit=1)
```

- Show the source line that then executes the query and saves the response. What is the name of the method that sends the query to the Knowledge Graph API?

```
res = req.execute()
```

The name of the method that sends the query is execute()

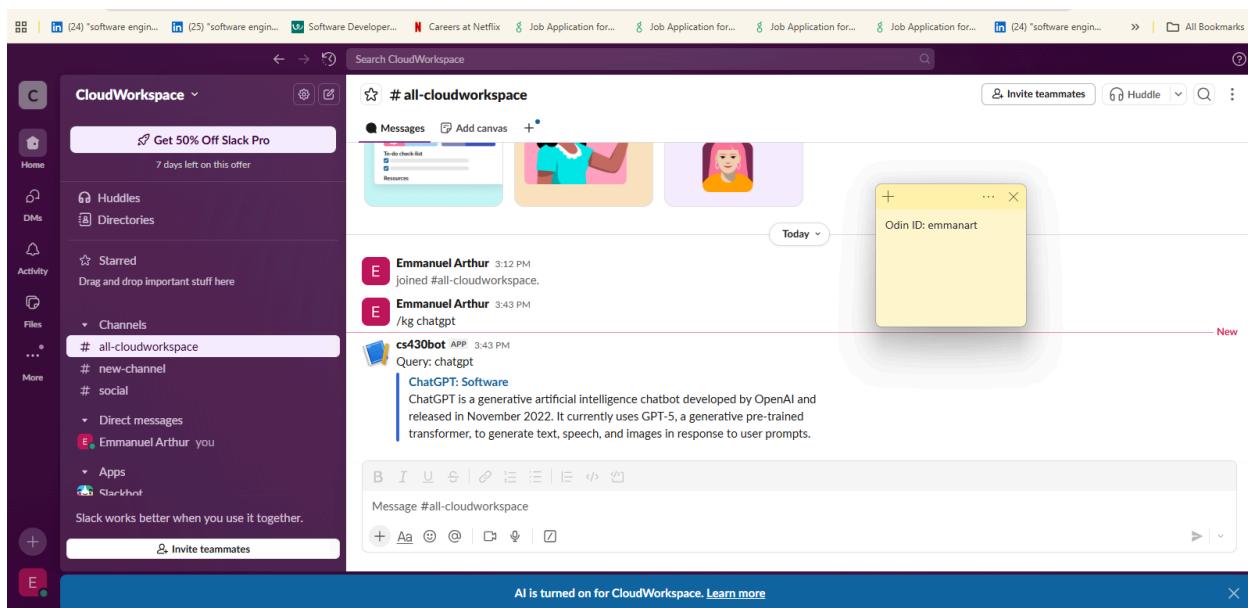
- What is the Python data type that is used to represent the formatted message?

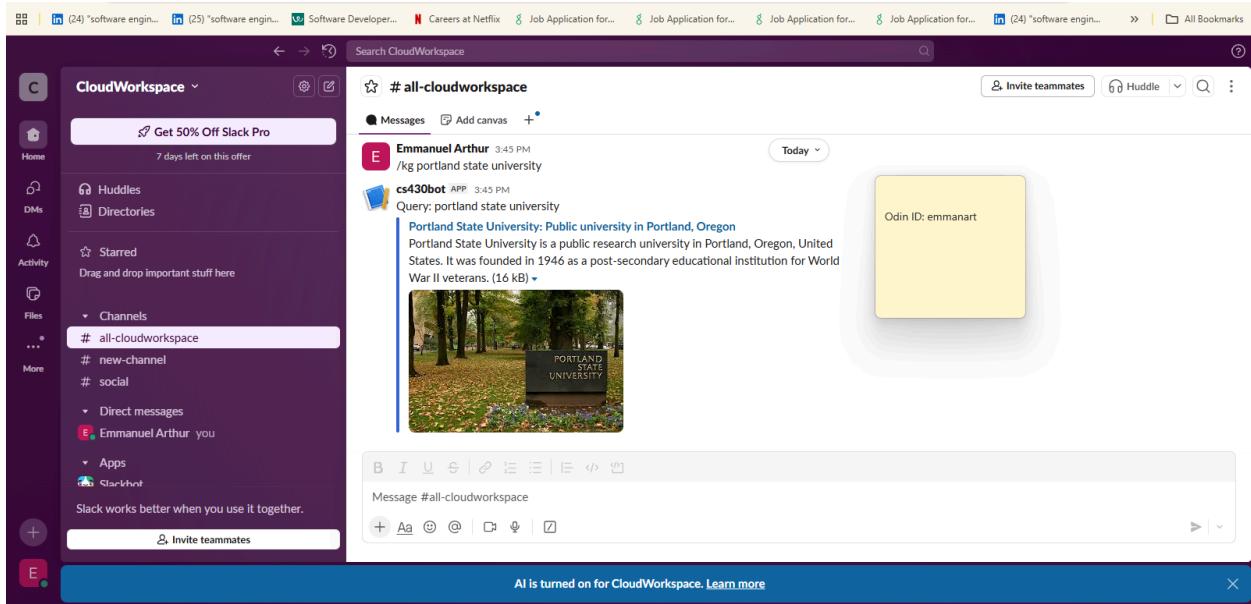
Dictionary

- What are the three main attributes of the formatted message passed back to Slack?

response\_type , text, attachments

- Take a screenshot of its response for your lab notebook.





## Lab 7.4g

- Show the output for your lab notebook

- What is the name of the function?

- What type of Vision client is instantiated in it?

Image Annotator client (`vision.ImageAnnotatorClient()`)

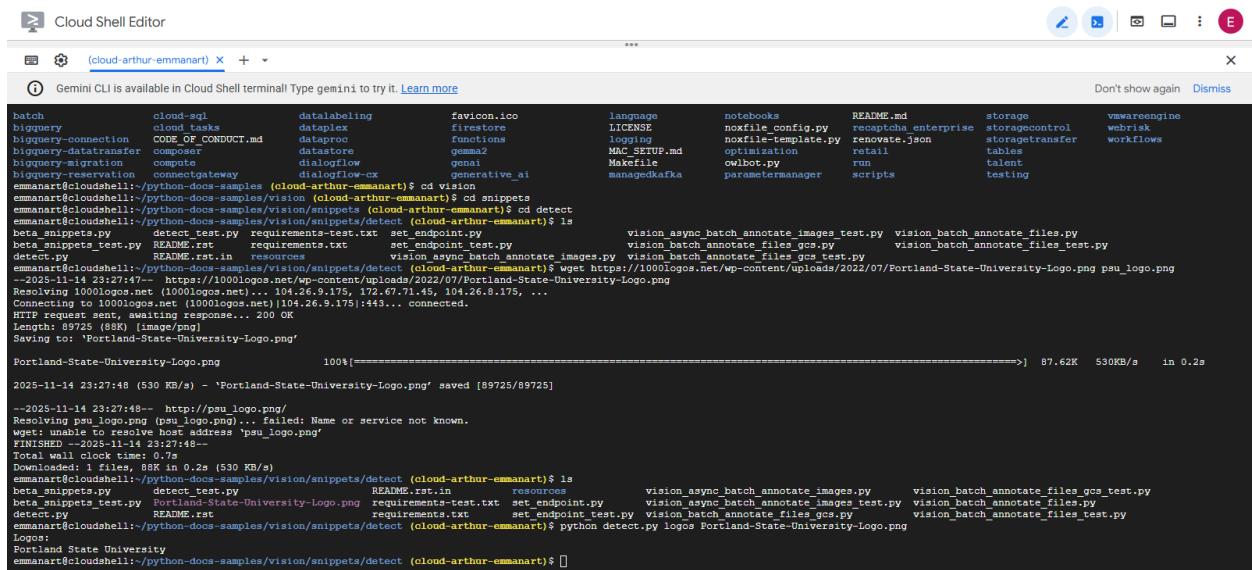
- What method is invoked in the Vision client to perform the detection?

The “label\_detection” method

- What is the name of the attribute in the response object that contains the results we seek?

The `label_annotations` attribute

- Take a screenshot of the output for the above commands



```

Cloud Shell Editor
(cloud-arthur-emmanart) ✘ + ⌂
Gemini CLI is available in Cloud Shell terminal! Type gemini to try it. Learn more
Don't show again Dismiss

batch          cloud-sql      datalabeling    favicon.ico   language      notebooks     README.md   storage      vmwareengine
bigquery       cloud_tasks    dataplex       firestore     LICENSE       nofile_config.py  recaptcha_enterprise storagecontrol webrisk
bigquery-connection  cloudfunctions  functions      functions    MAC_SETUP.md   nofile_template.py  reinvolve.json  storagecontrol  webtransfer
bigquery-datalifter  connector    datastore     generate     optimization  optimize.json  rotate      tables        workflows
bigquery-migration  compute      dialogflow    generate     Makfile      owlbot.py    run        talent
bigquery-reservation connectgateway dialogflow-cx generative_ai managedkafka parametermanager scripts  testing

emmanart@cloudshell:/~/python-docs-samples (cloud-arthur-emmanart)$ cd vision
emmanart@cloudshell:/~/python-docs-samples/vision (cloud-arthur-emmanart)$ cd snippets
emmanart@cloudshell:/~/python-docs-samples/vision/snippets (cloud-arthur-emmanart)$ cd detect
emmanart@cloudshell:/~/python-docs-samples/vision/snippets/detect (cloud-arthur-emmanart)$ ls
beta_snippets.py  detect_test.py  requirements-test.txt  set_endpoint.py  vision_async_batch_annotate_images.py  vision_batch_annotate_files_gcs.py
README.rst.in    resources      requirements.txt      set_endpoint_test.py  vision_batch_annotate_images_test.py  vision_batch_annotate_files_test.py
detect.py        README.rst.in  resources      set_endpoint_test.py  vision_batch_annotate_files_gcs_test.py
vision_async_batch_annotate_images.py  vision_batch_annotate_files_gcs_test.py
vision_batch_annotate_images_test.py  vision_batch_annotate_files_test.py
vision_batch_annotate_files_gcs.py  vision_batch_annotate_files_gcs_test.py
vision_batch_annotate_files_gcs_test.py  vision_batch_annotate_files_test.py

emmanart@cloudshell:~/python-docs-samples/vision/snippets/detect (cloud-arthur-emmanart)$ wget https://1000logos.net/wp-content/uploads/2022/07/Portland-State-University-Logo.png
--2025-11-14 23:27:48-- https://1000logos.net/wp-content/uploads/2022/07/Portland-State-University-Logo.png
Resolving 1000logos.net (1000logos.net)... 104.26.9.178, 172.67.71.45, 104.26.9.175, ...
Connecting to 1000logos.net (1000logos.net)|104.26.9.178|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 89725 (88K)
Saving to: 'Portland-State-University-Logo.png'

Portland-State-University-Logo.png 100%[=====] 87.62K 530KB/s in 0.2s
2025-11-14 23:27:48 - [530 KB/s] - 'Portland-State-University-Logo.png' saved [89725/89725]

--2025-11-14 23:27:48-- http://psu_logo.png/
Resolving psu_logo.png (psu_logo.png)... failed: Name or service not known.
wget: unable to resolve host address 'psu_logo.png'
FINISHED --2025-11-14 23:27:48-
Total wall clock time: 0.7s
Downloaded: 1 files, 88K in 0.2s (530 KB/s)
emmanart@cloudshell:~/python-docs-samples/vision/snippets/detect (cloud-arthur-emmanart)$ ls
beta_snippets.py  detect_test.py  requirements-test.txt  set_endpoint.py  vision_async_batch_annotate_images.py  vision_batch_annotate_files_gcs_test.py
detect.py        README.rst.in  resources      set_endpoint_test.py  vision_async_batch_annotate_images_test.py  vision_batch_annotate_files_test.py
requirements.txt  resources      set_endpoint_test.py  vision_batch_annotate_files_gcs.py  vision_batch_annotate_files_gcs_test.py
vision_async_batch_annotate_images.py  vision_batch_annotate_files_gcs_test.py
vision_batch_annotate_images_test.py  vision_batch_annotate_files_test.py
vision_batch_annotate_files_gcs.py  vision_batch_annotate_files_gcs_test.py
vision_batch_annotate_files_gcs_test.py  vision_batch_annotate_files_test.py
Logos:
Portland State University
emmanart@cloudshell:~/python-docs-samples/vision/snippets/detect (cloud-arthur-emmanart)$

```

- What method is invoked in the Vision client to perform the detection?

.`logo_detection` method

- Show the output for your lab notebook

- What is the name of the function?

Since the path to the audio file did not start with gcs the name of the function must be transcribe\_file

- What method is invoked in the Speech client to perform the detection?

## The recognize method

- What is the name of the attribute in the response object that contains the results we seek?

## The results attribute

- Show the output for your lab notebook

- What is the name of the function?

It's the translate\_text function

- What method is invoked in the Translate client to perform the detection?

translate method of the translate.client object

- What is the name of the attribute in the response object that contains the results we seek?

- Show the output for your lab notebook

The screenshot shows a Cloud Shell Editor window with a terminal tab titled '(cloud-arthur-emmanart)'. The terminal displays a series of Python commands and their outputs. A yellow callout box in the bottom right corner contains the text 'Odin ID: emmanart'.

```

3.4.2)
Requirement already satisfied: requests<0.0,>=0.0.1> in /usr/local/lib/python3.12/dist-packages (from requests<0.0,>=0.0.1>->google-api-core[grpc]==2.0.*!=2.1.*!=2.2.*!=2.3.*!=2.4.*!=2.5.*!=2.6.*!=2.7.*!=2.8.*!=2.9.*!=3.0.0,>=3.4.1->google-cloud-language) (0.5.0)
Requirement already satisfied: urlib3<3.3,>=3.2.1 in /usr/local/lib/python3.12/dist-packages (from requests<0.0.0,>=2.18.0->google-api-core[grpc]==2.0.*!=2.1.*!=2.2.*!=2.3.*!=2.4.*!=2.5.*!=2.6.*!=2.7.*!=2.8.*!=2.9.*!=3.0.0,>=3.4.1->google-cloud-language) (2.5.0)
Requirement already satisfied: certifi<=2017.4.17 in /usr/local/lib/python3.12/dist-packages (from requests<0.0.0,>=2.18.0->google-api-core[grpc]==2.0.*!=2.1.*!=2.2.*!=2.3.*!=2.4.*!=2.5.*!=2.6.*!=2.7.*!=2.8.*!=2.9.*!=3.0.0,>=3.4.1->google-cloud-language) (2025.9)
emmanart@cloudshell:~/python-docs-samples/translate/samples/snippets (cloud-arthur-emmanart)$ python language.py 'homework is awful'
"homework is awful" has sentiment=-0.8000000119209292

Entities are:
name: homework
emmanart@cloudshell:~/python-docs-samples/translate/samples/snippets (cloud-arthur-emmanart)$ python language.py 'homework is ok'
"homework is ok" has sentiment=0.30000001192092896

Entities are:
name: homework
emmanart@cloudshell:~/python-docs-samples/translate/samples/snippets (cloud-arthur-emmanart)$ python language.py 'homework is awesome'
"homework is awesome" has sentiment=0.4000000059604465

Entities are:
name: homework
emmanart@cloudshell:~/python-docs-samples/translate/samples/snippets (cloud-arthur-emmanart)$ python language.py 'homework is awesome'
"homework is awesome" has sentiment=0.8999999761581421

Entities are:
name: protectors
name: gas masks
name: Oregon
name: t-shirts
emmanart@cloudshell:~/python-docs-samples/translate/samples/snippets (cloud-arthur-emmanart)$ python language.py 'The protesters in Oregon put on gas masks and wore yellow t-shirts'
"The protesters in Oregon put on gas masks and wore yellow t-shirts" has sentiment=-0.6000000238418579

Entities are:
name: protectors
name: gas masks
name: Oregon
name: t-shirts
emmanart@cloudshell:~/python-docs-samples/translate/samples/snippets (cloud-arthur-emmanart)$ []

```

- What is the name of the function that performs the transcription?

`transcribe_gcs`

- What is the name of the function that performs the translation?

`translate_text`

- What is the name of the function that performs the entity analysis on the translation?

`entities_text`

- What is the name of the function that performs the entity analysis on the image?

`Detect_labels_uri`

- If the program deems them unrelated, then based on the results from the APIs, what must be changed in the program to address this?

Not much needs to be changed for the ball stadium situation

- If the program deems them unrelated, then based on the results from the APIs, what must be changed in the program to address this?

For the bicycle situation it seems bike is not matched with Bicycle so we need

- If the program deems them unrelated, then based on the results from the APIs, what must be changed in the program to address this?

For the ostrich situation we need to alter the code to account for the fact that a major substring of a string in entities could match a major substring of a string in the labels.

- What are the 3 labels with the highest confidence that the Video Intelligence API associates with the video and what are the confidences for each?

Sports: Confidence: 0.9218811392784119

Basketball: Confidence: 0.9137870669364929

Player: Confidence: 0.8446521162986755

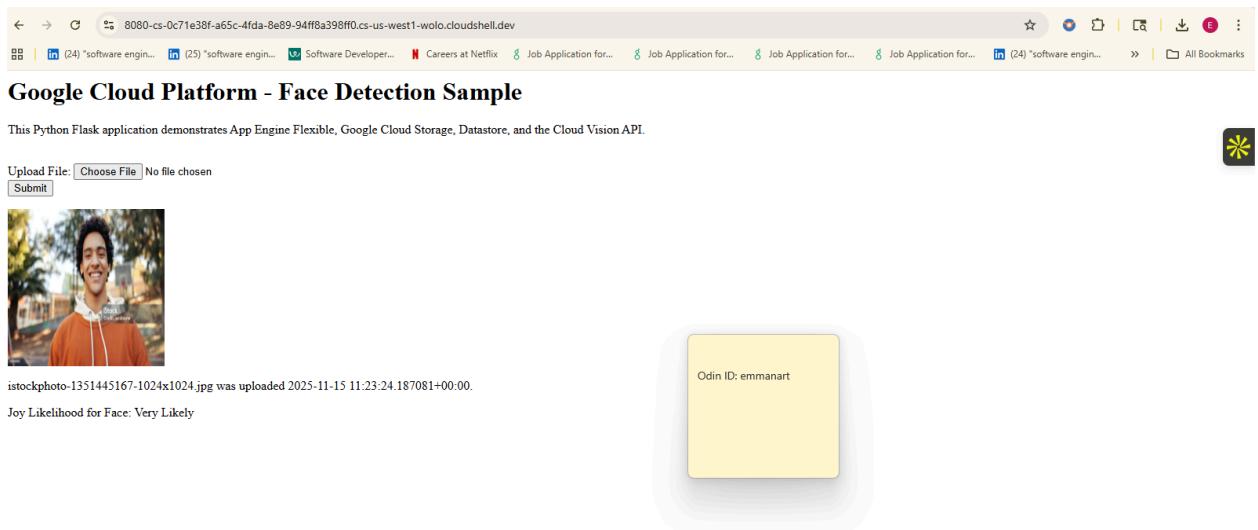
- What is the name of the client class in the package that is used?

VideoIntelligenceServiceClient

- What method is used in that class to perform the annotation?

annotate\_video

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



- What line of code creates the query for previous detections?

```
query = datastore_client.query(kind="Faces")
```

- What line of code sends the query to Cloud Datastore?

```
image_entities = list(query.fetch())
```

Then, view the `upload_photo` route.

- Show the line that retrieves the name of the storage bucket to use.

```
bucket = storage_client.get_bucket(CLOUD_STORAGE_BUCKET)
```

- What form field is used to specify the uploaded photo?

`Upload photo`

- Show the line that copies the photo's contents to the storage bucket.

```
blob = bucket.blob(photo.filename)
```

```
blob.upload_from_string(photo.read(),
content_type=photo.content_type)
```

- What method in Vision's annotation client is used to perform the analysis?

```
face_detection as seen in this line: faces =
vision_client.face_detection(image=image).face_annotations
```

- What fields are stored in Cloud Datastore for each image?

`blob_name, image_public_url, timestamp, joy` as seen in the code below:

```
entity = datastore.Entity(key)

entity["blob_name"] = blob.name
```

```
entity["image_public_url"] = blob.public_url  
  
entity["timestamp"] = current_datetime  
  
entity["joy"] = face_joy
```

- What happens at the end of the `upload_photo` route?

It redirects to the home page

