

Lab Notebook – Week 7

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Vision

What is the name of the function?

What type of Vision client is instantiated in it?

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

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

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

Speech

What is the name of the function?

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

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

Translate

What is the name of the function?

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

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

Natural Language

Integration

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

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

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

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

Test integration

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

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

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

Video Intelligence

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?

What is the name of the client class in the package?

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

Application

Code

What line of code creates the query for previous detections?

What line of code sends the query to Cloud Datastore?

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

What form field is used to specify the uploaded photo?

[Show the line that copies the photo's contents to the storage bucket.](#)
[What method in Vision's annotation client is used to perform the analysis?](#)
[What fields are stored in Cloud Datastore for each image?](#)
[What happens at the end of the `upload_photo` route?](#)

07.1a: Terraform AWS Guestbook

Launching configuration

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

Changes to Outputs:
  + ec2instance = (known after apply)

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

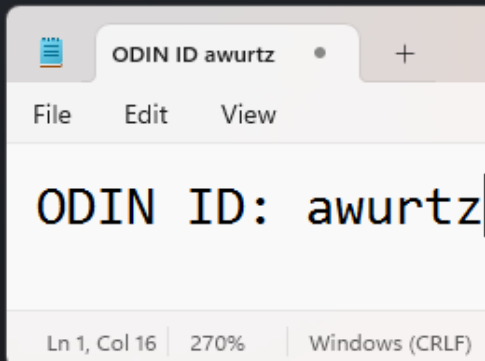
  Enter a value: yes

aws_instance.guestbook: Creating...
aws_instance.guestbook: Still creating... [10s elapsed]
aws_instance.guestbook: Still creating... [20s elapsed]
aws_instance.guestbook: Still creating... [30s elapsed]
aws_instance.guestbook: Creation complete after 32s [id=i-0c458c00f6039ccc0]

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

Outputs:

ec2instance = "18.234.134.91"
[cloudshell-user@ip-10-2-164-187 tf]$
```



Instance summary for i-0c458c00f6039ccc0 [Info](#)

Updated less than a minute ago

Instance ID i-0c458c00f6039ccc0	Public IPv4 address 18.234.134.91 open address
IPv6 address -	Instance state Running
Hostname type IP name: ip-172-31-22-175.ec2.internal	Private IP DNS name (IPv4 only) ip-172-31-22-175.ec2.internal
Answer private resource DNS name -	Instance type t2.micro
Auto-assigned IP address 18.234.134.91 [Public IP]	VPC ID vpc-00b860617a51f6d9e
IAM Role -	Subnet ID subnet-06877e3276d1b5cc7

ODIN ID z

File Edit View

ODIN ID: awurtz

Adding ssh access

us-east-1

```
1 update can be applied immediately.
To see these additional updates:

The list of available updates is:
To check for new updates run: sudo apt-get update

The programs included with the Ubuntu system are free software; you can
the exact distribution terms for each program, see the files
individual files in /usr/share/doc/*/*-*.txt.gz.

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-172-31-19-221:~$
```

ODIN ID awurtz

File Edit View

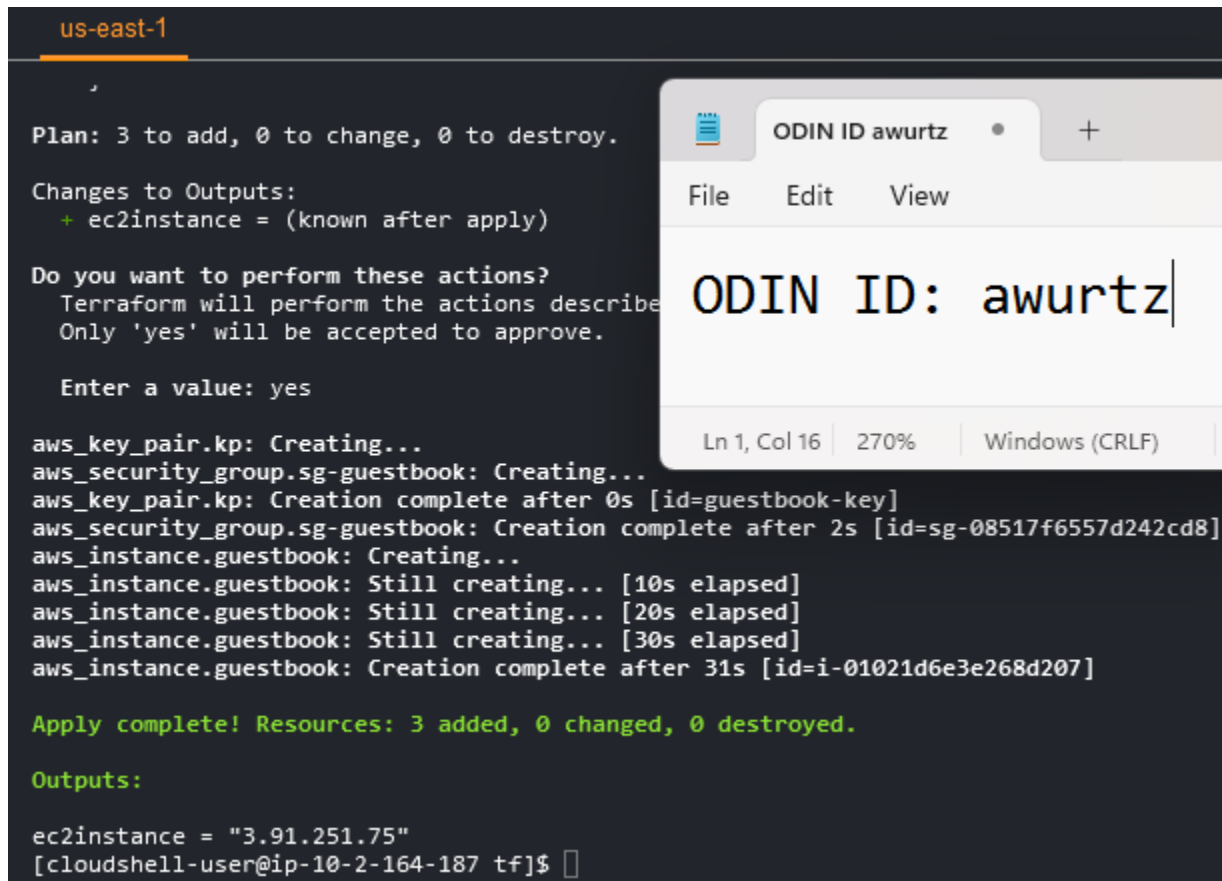
ODIN ID: awurtz

Ln 1, Col 16 | 270% | Windows (CRLF)

CloudShell

Feedback

Adding the Guestbook Application



The screenshot shows a terminal window with Terraform output and a browser window. The terminal window has a tab labeled 'us-east-1'. The output shows the plan, a confirmation prompt, and the execution of the apply command. The browser window has a tab labeled 'ODIN ID awurtz' and shows the text 'ODIN ID: awurtz'.

```
us-east-1

Plan: 3 to add, 0 to change, 0 to destroy.

Changes to Outputs:
+ ec2instance = (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

aws_key_pair.kp: Creating...
aws_security_group.sg-guestbook: Creating...
aws_key_pair.kp: Creation complete after 0s [id=guestbook-key]
aws_security_group.sg-guestbook: Creation complete after 2s [id=sg-08517f6557d242cd8]
aws_instance.guestbook: Creating...
aws_instance.guestbook: Still creating... [10s elapsed]
aws_instance.guestbook: Still creating... [20s elapsed]
aws_instance.guestbook: Still creating... [30s elapsed]
aws_instance.guestbook: Creation complete after 31s [id=i-01021d6e3e268d207]

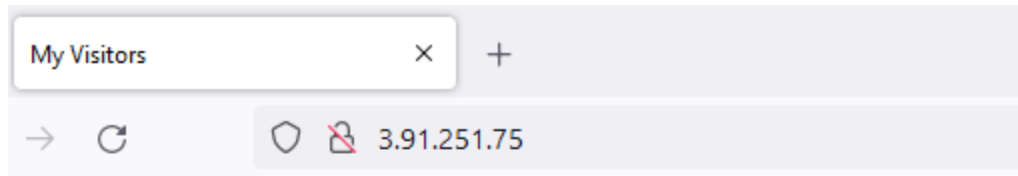
Apply complete! Resources: 3 added, 0 changed, 0 destroyed.

Outputs:

ec2instance = "3.91.251.75"
[cloudshell-user@ip-10-2-164-187 tf]$
```

My ip address changed because I had a bug in my code and started over.

View the Guestbook



Guestbook

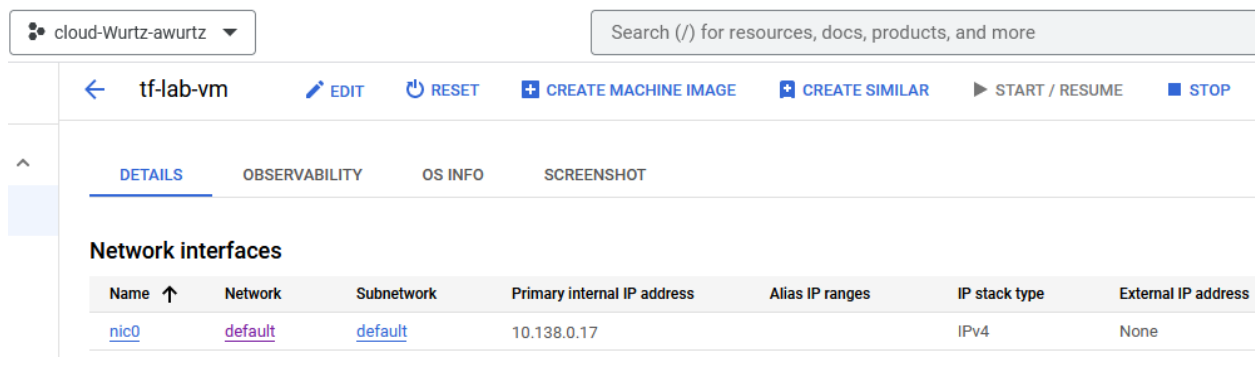
Sign [here](#)

Entries

Addison <awurtz@pdx.edu>
signed on 2023-11-12
Hello Terraform on AWS!

07.1g: Terraform GCP Guestbook

Launching configuration



Adding an external IP address

```
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 11s [id=projects/cloud-wurtz-awurtz/regions/us-west1/addresses/ipv4-address]
google_compute_instance.default: Modifying... [id=projects/cloud-wurtz-awurtz/zones/us-west1-b/instances/tf-lab-vm]
google_compute_instance.default: Still modifying... [id=projects/cloud-wurtz-awurtz/zones/us-west1-b/instances/tf-lab-vm, 10s elapsed]
google_compute_instance.default: Modifications complete after 11s [id=projects/cloud-wurtz-awurtz/zones/us-west1-b/instances/tf-lab-vm]

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

Outputs:
ip = "34.83.13.158"
awurtz@cloudshell:~/tf (cloud-wurtz-awurtz)$
```

	tf-lab-vm	us-west1-b	10.138.0.17 (nic0)	34.83.13.158 (nic0)
---	---------------------------	------------	--------------------------------------	---------------------------------------

(cloud-wurtz-awurtz)   

Adding ssh access

```
awurtz@cloudshell:~/tf (cloud-wurtz-awurtz)$ ssh 34.83.13.158
The authenticity of host '34.83.13.158 (34.83.13.158)' can't be established.
ECDSA key fingerprint is SHA256:xkkftaBsmyp8fZzsFWc4Fbx3KD90AbzK/0QkLBOSxtw.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '34.83.13.158' (ECDSA) to the list of known hosts.
Enter passphrase for key '/home/awurtz/.ssh/id_ed25519':
Welcome to Ubuntu 20.04.6 LTS (GNU/Linux 5.15.0-1046-gcp x86_64)

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

System information as of Mon Nov 13 01:49:11 UTC 2023

System load:  0.13               Processes:            106
Usage of /:   19.5% of 9.51GB    Users logged in:     0
Memory usage: 5%                IPv4 address for ens4: 10.138.0.18
Swap usage:   0%

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.

awurtz@tf-lab-vm:~$
```

Adding the Guestbook application

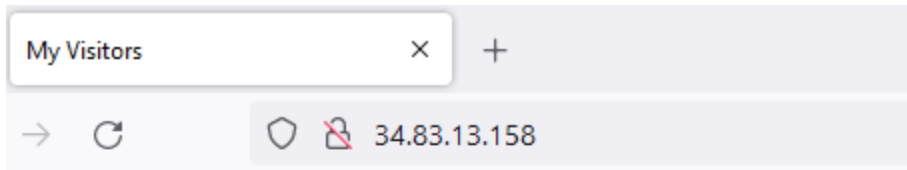
What resources are being added, changed, or destroyed?

Google_compute_instance.default will be destroyed and then replaced with an updated version.

What part of the configuration forces a replacement to occur?

The metadata_startup_script

View the Guestbook



07.2g: Kubernetes Guestbook

Create Kubernetes cluster

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

gke-guestbook-default-pool-467c7887

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

gke-guestbook-default-pool-467c7887-grp

What are the names of the two nodes?

Gke-guestbook-default-pool-467c7887-4v48 and gke-guestbook-default-pool-467c7887-bf62

Prepare a container image

cloud-Wurtz-awurtz

arti

← Image details

DELETE

DEPLOY

REFRESH

Container Registry is deprecated. After May 15, 2024, Artifact Registry will host images for the gcr.io

7425a2ec488f

gcr.io > cloud-wurtz-awurtz > gcp_gb > 7425a2ec488f

OVERVIEW

PULL

MANIFEST

Image type

Docker Manifest, Schema 2

Media type

application/vnd.docker.distribution.manifest.v2+json

Project

cloud-wurtz-awurtz

Repository

gcp_gb

Digest

sha256:7425a2ec488fa193e637e7e8b4c0d21d2ea21559630d47b40f94316ae483f4a7

Virtual size ?

1.1 GB

Created

Nov 12, 2023, 6:34:19 PM

Uploaded

Nov 12, 2023, 6:40:36 PM

Tags

latest

Deploy the configuration

```
awurtz@cloudshell:~/cs430-src/05_gcp_datastore (cloud-wurtz-awurtz)$ kubectl get pods
```

NAME	READY	STATUS	RESTARTS	AGE
guestbook-replicas-gnxhn	1/1	Running	0	2m19s
guestbook-replicas-jblhv	1/1	Running	0	2m19s
guestbook-replicas-p8lr6	1/1	Running	0	2m19s

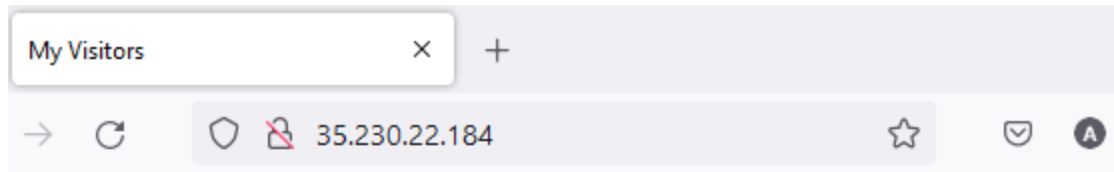
```
awurtz@cloudshell:~/cs430-src/05_gcp_datastore (cloud-wurtz-awurtz)$
```

```
awurtz@cloudshell:~/cs430-src/05_gcp_datastore (cloud-wurtz-awurtz)$ kubectl get services
```

NAME	TYPE	CLUSTER-IP	EXTERNAL-IP	PORT(S)	AGE
guestbook-lb	LoadBalancer	10.20.2.177	35.230.22.184	80:30844/TCP	2m43s
kubernetes	ClusterIP	10.20.0.1	<none>	443/TCP	22m

```
awurtz@cloudshell:~/cs430-src/05_gcp_datastore (cloud-wurtz-awurtz)$
```

View the Guestbook



Guestbook

Sign [here](#)

Entries

Addison <awurtz@pdx.edu>
signed on 2023-11-05 23:51:36.734893+00:00
Hello Cloud Run!

Addison <awurtz@pdx.edu>
signed on 2023-11-03 22:25:33.192990+00:00
Hello App Engine!

Addison <awurtz@pdx.edu>
signed on 2023-11-13 02:49:00.581541+00:00
Hello Kubernetes!

Managed pods

Name	Status	Restarts	Created on ↑
guestbook-replicas-jblhv	✓ Running	0	Nov 12, 2023, 6:45:24 PM
guestbook-replicas-gnxhn	✓ Running	0	Nov 12, 2023, 6:45:24 PM
guestbook-replicas-p8lr6	✓ Running	0	Nov 12, 2023, 6:45:24 PM

Exposing services ?

Name ↑	Type	Endpoints
guestbook-lb	Load balancer	35.230.22.184:80

(cloud-wurtz-awurtz) ×



Open Editor



cloud-Wurtz-awurtz

kub



Load balancer details



EDIT



DELETE



VIEW IP

af4ada8176c65459887675a67ad5f583

Target-pool Network Load Balancer

Frontend

Protocol ↑	IP version	IP:Port	Network Tier ?
TCP	IPv4	35.230.22.184:80	Premium

Backend

Name	Region	Health check
af4ada8176c65459887675a67ad5f583	us-west1	k8s-1f686f39213fbf43-node

cloud-Wurtz-awurtz

Search (/) for resources, docs, products, and more

IP addresses

RESERVE EXTERNAL STATIC IP ADDRESS

RESERVE INTERNAL STATIC IP ADDRESS

REFRESH

RELEASE STATIC

ALL

INTERNAL IP ADDRESSES

EXTERNAL IP ADDRESSES

IPV4 ADDRESSES

IPV6 ADDRESSES

In use by : af4ada8176c65459887675a67ad5f583

OR

In use by : gke-guestbook-default-pool-467c7887-4v48

OR



Filter

In use by : gke-guestbook-default-pool-467c7887-bf62

Enter property name or value

<input type="checkbox"/>	Name	IP address	Access type	Region	Type	Version	In use by ↓
<input type="checkbox"/>	—	10.138.0.21	Internal	us-west1	Ephemeral	IPv4	VM instance gke-guestbook-default-pool-467c7887-bf62 (Zone us-west1-b)
<input type="checkbox"/>	—	34.83.13.158	External	us-west1	Ephemeral	IPv4	VM instance gke-guestbook-default-pool-467c7887-bf62 (Zone us-west1-b)
<input type="checkbox"/>	—	10.138.0.22	Internal	us-west1	Ephemeral	IPv4	VM instance gke-guestbook-default-pool-467c7887-4v48 (Zone us-west1-b)
<input type="checkbox"/>	—	35.233.154.198	External	us-west1	Ephemeral	IPv4	VM instance gke-guestbook-default-pool-467c7887-4v48 (Zone us-west1-b)
<input type="checkbox"/>	—	35.230.22.184	External	us-west1	Ephemeral	IPv4	Forwarding rule af4ada8176c65459887675a67ad5f583

Deploy and view application

  35.230.22.184



Guestbook

Sign [here](#)

Entries

Addison <awurtz@pdx.edu>
signed on 2023-11-05 23:51:36.734893+00:00
Hello Cloud Run!

Addison <awurtz@pdx.edu>
signed on 2023-11-03 22:25:33.192990+00:00
Hello App Engine!

Addison <awurtz@pdx.edu>
signed on 2023-11-13 03:25:00.004375+00:00
Hello Cloud Build!

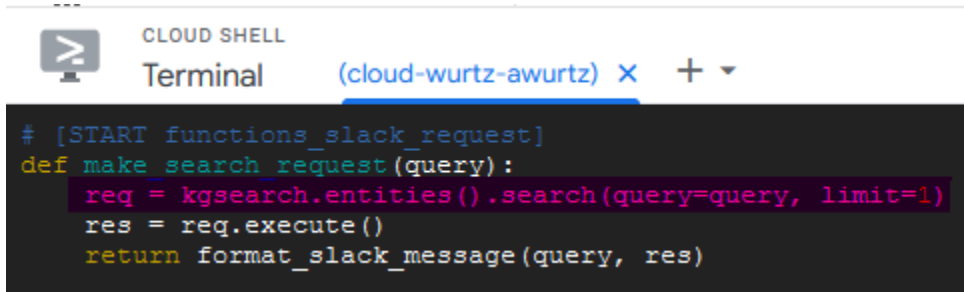
07.3g: APIs (Slack, Knowledge Graph)

Code

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

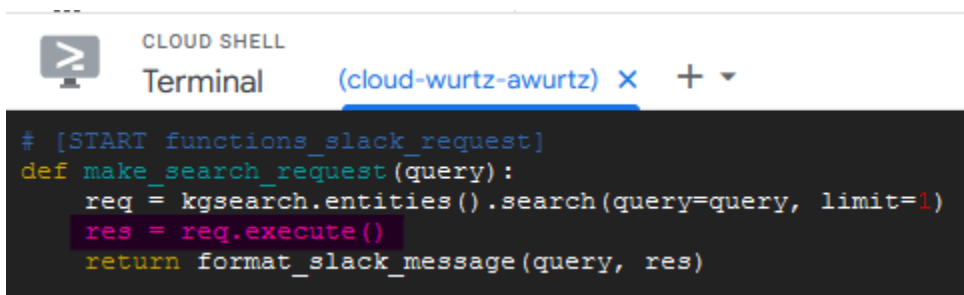
Yes, Google provides Knowledge Graph API support for python and several other programming languages.

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



```
...  
CLOUD SHELL  
Terminal (cloud-wurtz-awurtz) X + ▾  
# [START functions_slack_request]  
def make_search_request(query):  
    req = kgsearch.entities().search(query=query, limit=1)  
    res = req.execute()  
    return format_slack_message(query, res)
```

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?



```
...  
CLOUD SHELL  
Terminal (cloud-wurtz-awurtz) X + ▾  
# [START functions_slack_request]  
def make_search_request(query):  
    req = kgsearch.entities().search(query=query, limit=1)  
    res = req.execute()  
    return format_slack_message(query, res)
```

The `execute()` method sends the query request to the Knowledge Graph API.

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


A dictionary.

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

The 3 main attributes are “response_type”, “text”, and “attachments”.

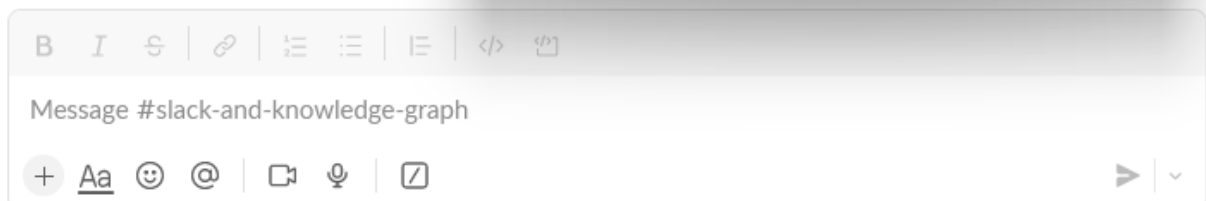
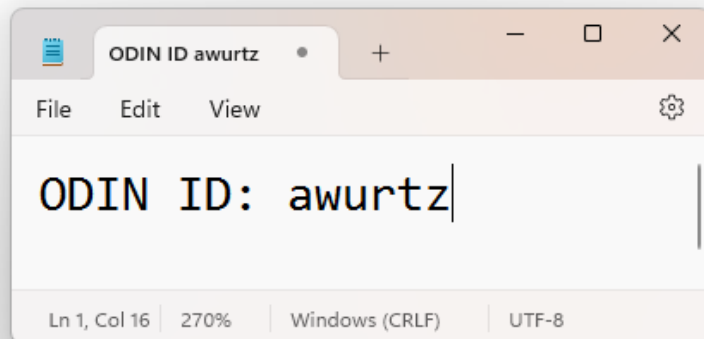
Test the command

 **Addison Wurtz** 8:21 PM
/kg chatgpt

 **cs430bot** APP 8:21 PM
Query: chatgpt

ChatGPT: Computer program

ChatGPT, which stands for Chat Generative Pre-trained Transformer, is a large language model-based chatbot developed by OpenAI and launched on November 30, 2022, that enables users to refine and steer a conversation towards a desired length, format, style, level of detail, and language.



Addison Wurtz
CS 530
notebooks/Week7

07.4g: ML APIs

Vision

```
(env) awurtz@cloudshell:~/python-docs-samples/vision/snippets/detect (cloud-wurtz-awurtz)$ python detect.py labels-  
uri gs://cloud-samples-data/ml-api-codelab/birds.jpg  
Labels:  
Bird  
Ratite  
Cloud  
Sky  
Beak  
Plant  
Green  
Neck  
Ostrich  
Casuariiformes  
(env) awurtz@cloudshell:~/python-docs-samples/vision/snippets/detect (cloud-wurtz-awurtz)$
```

What is the name of the function?

detect_labels_uri()

What type of Vision client is instantiated in it?

Vision.ImageAnnotatorClient()

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

ImageAnnotatorClient.label_detection()

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

label_annotations

```
(env) awurtz@cloudshell:~/python-docs-samples/vision/snippets/detect (cloud-wurtz-awurtz)$ wget https://1000logos.n  
et/wp-content/uploads/2022/06/Emory-University-Logo.png -O emory_logo.png  
--2023-11-13 19:34:43-- https://1000logos.net/wp-content/uploads/2022/06/Emory-University-Logo.png  
Resolving 1000logos.net (1000logos.net)... 104.26.9.175, 104.26.8.175, 172.67.71.45, ...  
Connecting to 1000logos.net (1000logos.net)|104.26.9.175|:443... connected.  
HTTP request sent, awaiting response... 200 OK  
Length: 67851 (66K) [image/png]  
Saving to: 'emory_logo.png'  
  
emory_logo.png                               100%[=====] 66.26K  --.-KB/s   in 0.0  
06s  
  
2023-11-13 19:34:44 (10.1 MB/s) - 'emory_logo.png' saved [67851/67851]  
  
(env) awurtz@cloudshell:~/python-docs-samples/vision/snippets/detect (cloud-wurtz-awurtz)$ python detect.py logos e  
mory_logo.png  
Logos:  
Emory University  
(env) awurtz@cloudshell:~/python-docs-samples/vision/snippets/detect (cloud-wurtz-awurtz)$
```

Addison Wurtz
CS 530
notebooks/Week7

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

ImageAnnotatorClient.logo_detection()

Speech

```
(env) awurtz@cloudshell:~/python-docs-samples/speech/snippets (cloud-wurtz-awurtz)$ python transcribe.py resources/audio.raw
\Transcript: how old is the Brooklyn Bridge
(env) awurtz@cloudshell:~/python-docs-samples/speech/snippets (cloud-wurtz-awurtz)$
```

What is the name of the function?

transcribe_file()

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

SpeechClient.recognize()

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

response.results

Translate

```
(env) awurtz@cloudshell:~/python-docs-samples/translate/samples/snippets (cloud-wurtz-awurtz)$ python snippets.py t
ranslate-text en '你有沒有帶外套'
Text: 你有沒有帶外套
Translation: did you bring a coat
Detected source language: zh-TW
(env) awurtz@cloudshell:~/python-docs-samples/translate/samples/snippets (cloud-wurtz-awurtz)$
```

What is the name of the function?

translate_text()

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

translate_client.translate()

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

result["translatedText"]

Natural Language

```
(env) awurtz@cloudshell:~/python-docs-samples/translate/samples/snippets (cloud-wurtz-awurtz)$ python language.py '
homework is awful!'
python language.py 'homework is ok'
python language.py 'homework is awesome?'
python language.py 'homework is awesome!'
python language.py 'The protestors in Oregon put on gas masks and wore yellow t-shirts'
"homework is awful!" has sentiment=-0.800000011920929

Entities are:
name: homework
"homework is ok" has sentiment=0.30000001192092896

Entities are:
name: homework
"homework is awesome?" has sentiment=0.4000000059604645

Entities are:
name: homework
"homework is awesome!" has sentiment=0.8999999761581421

Entities are:
name: homework
"The protestors in Oregon put on gas masks and wore yellow t-shirts" has sentiment=-0.6000000238418579

Entities are:
name: protestors
name: gas masks
name: Oregon
name: t-shirts
```

Integration

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()`

Test integration

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

In this case, the entity comparison should be case insensitive. The program identifies the entity 'football' in the text and 'Football' in the image. The desired behavior is that the program would identify these entities as a match.

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

In this case, the text contains the 'bike' entity, but the image is labeled with 'Bicycle'. Here, it seems relevant to generate synonyms in order to catch matches like this. (As in the prior example, the text entities are lowercase, while the image labels are capitalized. This discrepancy must also be addressed).

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

In this example, the text has the entity 'ostriches' while the image labels contain the entity 'ostrich'. This could be solved by allowing singular and plural forms of words to count as a match (and the capitalization problem is still present).

Video Intelligence

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?

Label:	Confidence:
sports	92.19%
basketball	91.38%
player	84.47%

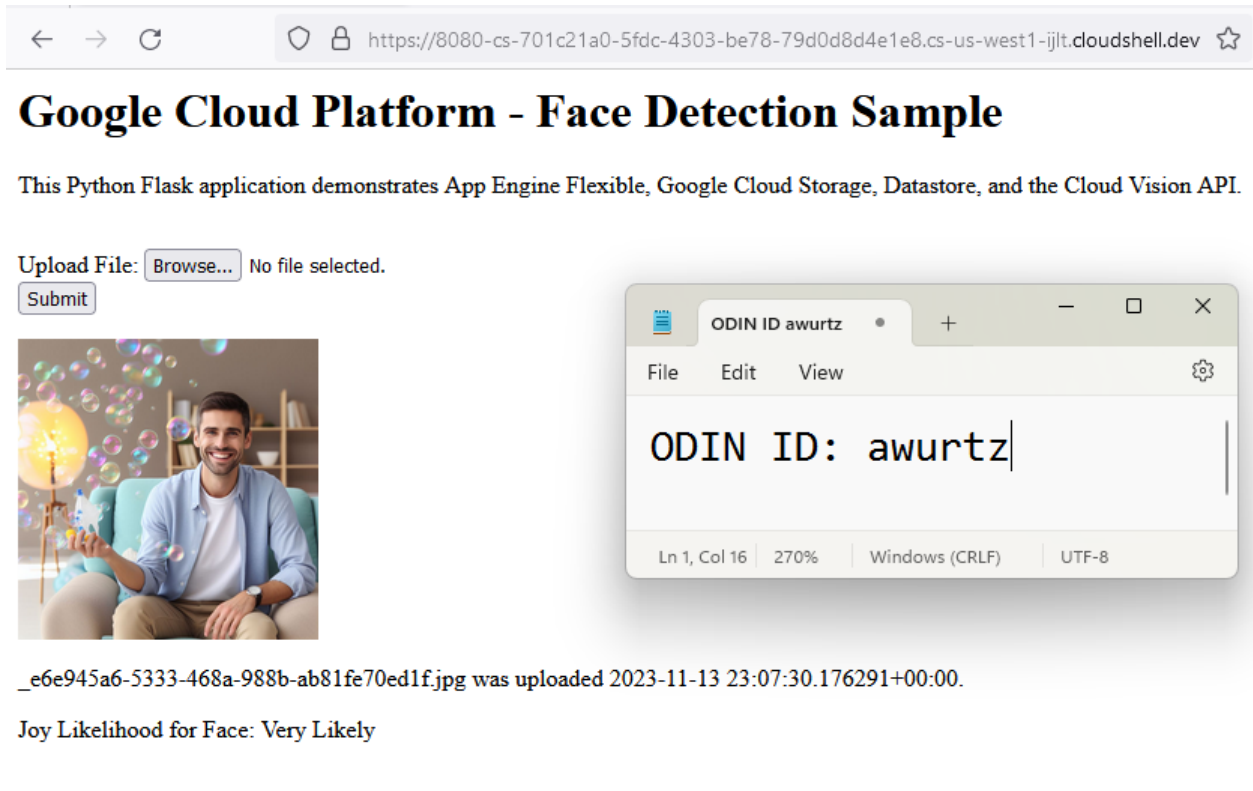
What is the name of the client class in the package?

videointelligence.VideoIntelligenceServiceClient()

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

annotate_video()

Application

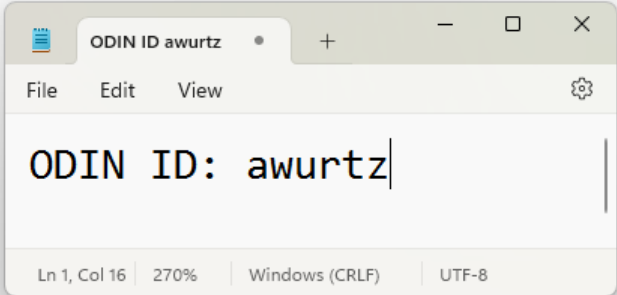



← → ↻ 🔒 https://8080-cs-701c21a0-5fdc-4303-be78-79d0d8d4e1e8.cs-us-west1-1-jlt.cloudshell.dev ☆

Google Cloud Platform - Face Detection Sample

This Python Flask application demonstrates App Engine Flexible, Google Cloud Storage, Datastore, and the Cloud Vision API.

Upload File: No file selected.

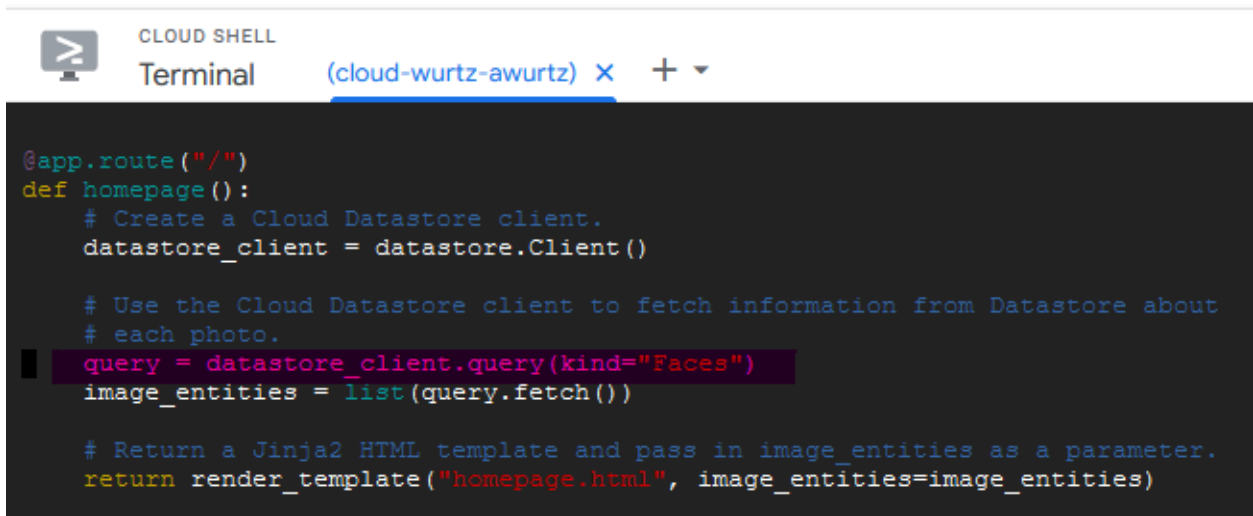


_e6e945a6-5333-468a-988b-ab81fe70ed1f.jpg was uploaded 2023-11-13 23:07:30.176291+00:00.

Joy Likelihood for Face: Very Likely

Code

What line of code creates the query for previous detections?



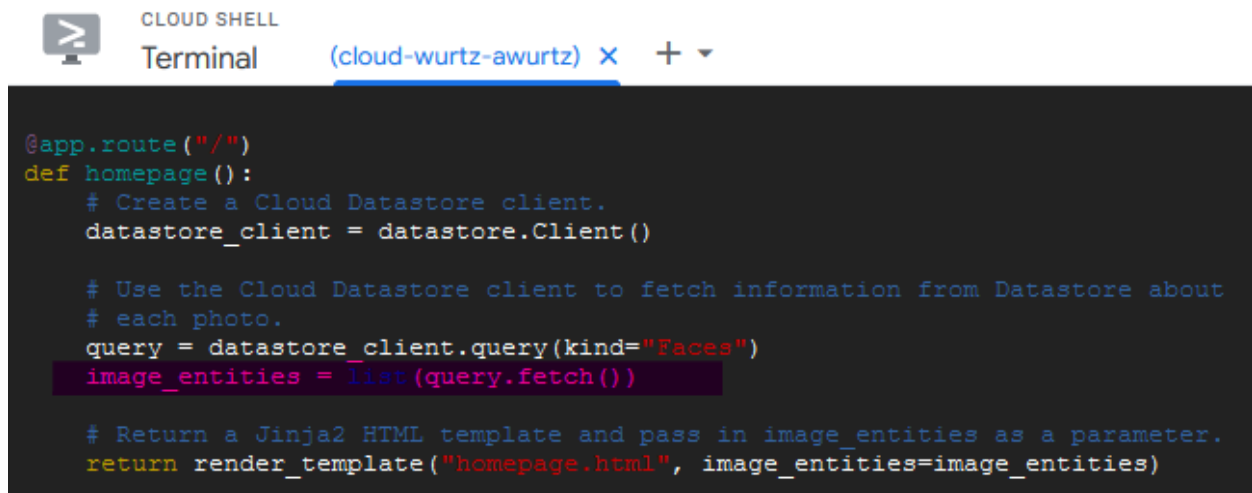
```
CLOUD SHELL
Terminal (cloud-wurtz-awurtz) × + ▾

@app.route("/")
def homepage():
    # Create a Cloud Datastore client.
    datastore_client = datastore.Client()

    # Use the Cloud Datastore client to fetch information from Datastore about
    # each photo.
    query = datastore_client.query(kind="Faces")
    image_entities = list(query.fetch())

    # Return a Jinja2 HTML template and pass in image_entities as a parameter.
    return render_template("homepage.html", image_entities=image_entities)
```

What line of code sends the query to Cloud Datastore?



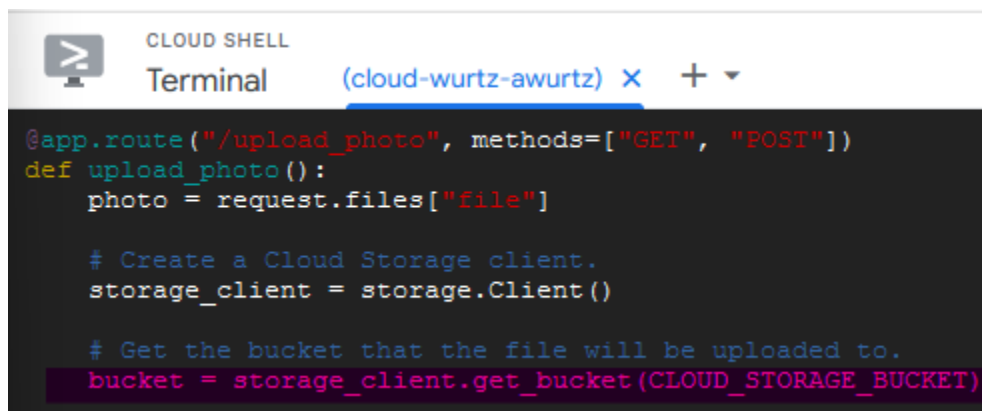
A screenshot of a Cloud Shell terminal window. The title bar shows 'CLOUD SHELL' and 'Terminal' with a tab labeled '(cloud-wurtz-awurtz)'. The code in the terminal is as follows:

```
@app.route("/")
def homepage():
    # Create a Cloud Datastore client.
    datastore_client = datastore.Client()

    # Use the Cloud Datastore client to fetch information from Datastore about
    # each photo.
    query = datastore_client.query(kind="Faces")
    image_entities = list(query.fetch())

    # Return a Jinja2 HTML template and pass in image_entities as a parameter.
    return render_template("homepage.html", image_entities=image_entities)
```

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



A screenshot of a Cloud Shell terminal window. The title bar shows 'CLOUD SHELL' and 'Terminal' with a tab labeled '(cloud-wurtz-awurtz)'. The code in the terminal is as follows:

```
@app.route("/upload_photo", methods=["GET", "POST"])
def upload_photo():
    photo = request.files["file"]

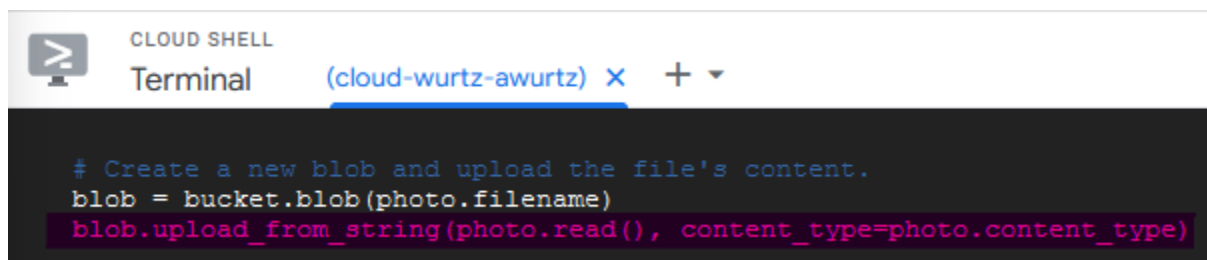
    # Create a Cloud Storage client.
    storage_client = storage.Client()

    # Get the bucket that the file will be uploaded to.
    bucket = storage_client.get_bucket(CLOUD_STORAGE_BUCKET)
```

What form field is used to specify the uploaded photo?

`request.files["file"]`

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



A screenshot of a Cloud Shell terminal window. The title bar shows 'CLOUD SHELL' and 'Terminal' with a tab labeled '(cloud-wurtz-awurtz)'. The code in the terminal is as follows:

```
# Create a new blob and upload the file's content.
blob = bucket.blob(photo.filename)
blob.upload_from_string(photo.read(), content_type=photo.content_type)
```


Addison Wurtz
CS 530
notebooks/Week7

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

`vision_client.face_detection().face_annotations`

What fields are stored in Cloud Datastore for each image?

Key, blob_name, image_public_url, timestamp, joy

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

A redirect to the home page.