

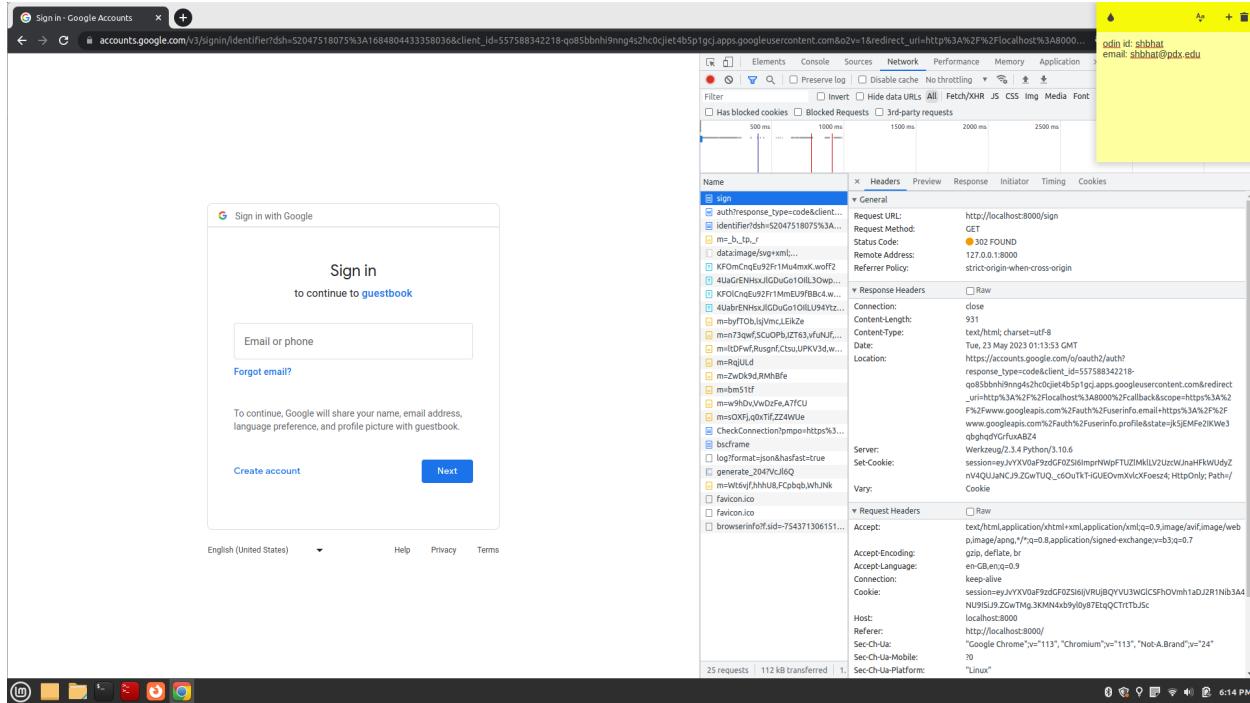
**Lab Notebook Week 8**  
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# 8.1 OAuth2 Guestbook

## Card 12

8.1.1 Take a screenshot of the Headers that includes the URL and the returned HTTP status code for each request for your lab notebook.



The screenshot shows a browser window with a Google sign-in dialog titled "Sign in with Google". The dialog asks for email or phone and provides a "Forgot email?" link. Below it, a note says "To continue, Google will share your name, email address, language preference, and profile picture with guestbook." It also has "Create account" and "Next" buttons. At the bottom, there are links for "English (United States)", "Help", "Privacy", and "Terms". Above the dialog, the browser's address bar shows a URL starting with "accounts.google.com/v3/signin/did...".

Below the browser window, the operating system taskbar is visible with icons for file, folder, search, and other applications. The system tray shows battery level, signal strength, and the date and time (6:14 PM).

The main focus is the Network tab of the developer tools, which lists numerous network requests. One request is highlighted in yellow, showing the following details:

- Name: E-sign
- URL: <http://localhost:8000/sign>
- Request Method: GET
- Status Code: 302 FOUND
- Remote Address: 127.0.0.1:8000
- Referrer Policy: strict-origin-when-cross-origin

The Headers section shows the following header fields:

- Connection: close
- Content-Length: 931
- Content-Type: text/html; charset=utf-8
- Date: Tue, 23 May 2023 01:13:53 GMT
- Location: [https://accounts.google.com/signin/oauth2/auth?state=jk\\$EMFz2IKWe3odBbkhmgA2zhdvJnEt45s4tpg.apps.googleusercontent.com&redirect\\_uri=https%3A%2F%2Fwww.googleapis.com%2Fauth%2Fuserinfo.email+https%3A%2F%2Fwww.googleapis.com%2Fauth%2Fuserinfo.profile&state=jk\\$EMFz2IKWe3obghopYGrfxuA8Z4](https://accounts.google.com/signin/oauth2/auth?state=jk$EMFz2IKWe3odBbkhmgA2zhdvJnEt45s4tpg.apps.googleusercontent.com&redirect_uri=https%3A%2F%2Fwww.googleapis.com%2Fauth%2Fuserinfo.email+https%3A%2F%2Fwww.googleapis.com%2Fauth%2Fuserinfo.profile&state=jk$EMFz2IKWe3obghopYGrfxuA8Z4)
- Server: Werkzeug/2.3.4 Python/3.10.6
- Set-Cookie: sessioneyjxV0af92dGF0ZS6ijVRUJBQYVLU3WGICSFhOVmh1aJ2R1Nb3AA...nV4QUAnNCJ9.ZGwTUQ\_c6OuTkT-GUEoVmXvIcXFoez4; HttpOnly; Path=/; Vary: Cookie
- Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,image/apng,\*/\*;q=0.8,application/signed-exchange;v=b3;q=0.7
- Accept-Encoding: gzip, deflate, br
- Accept-Language: en-GB,en;q=0.9
- Connection: keep-alive
- Cookie: sessioneyjxV0af92dGF0ZS6ijVRUJBQYVLU3WGICSFhOVmh1aJ2R1Nb3AA...NURUJ9.ZGwTMg\_3KMN4xb5yI0y@TEtqQcTrTbJ5c; localhost=8000
- Host: http://localhost:8000/
- Referer: <http://localhost:8000/>
- Sec-Ch-Ua: "Google Chrome";v="113", "Chromium";v="113", "Not-A-Brand";v="24"
- Sec-Ch-Ua-Mobile: ?0
- Sec-Ch-Ua-Platform: "Linux"

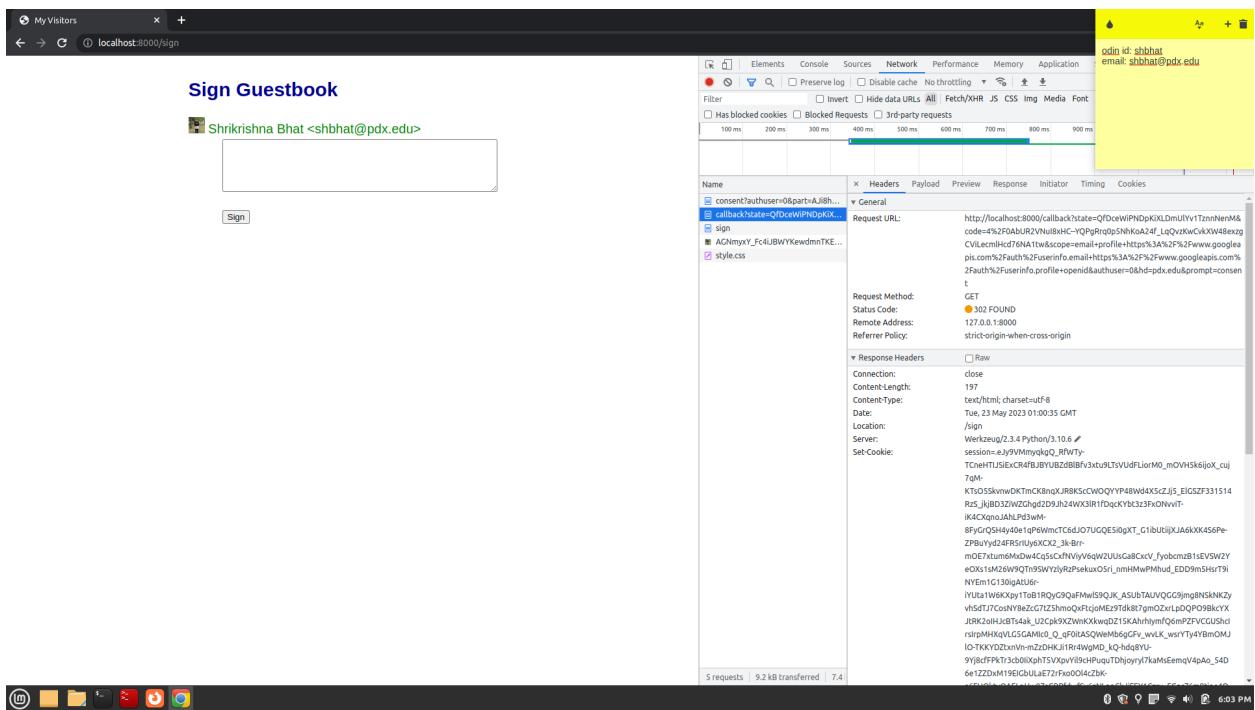
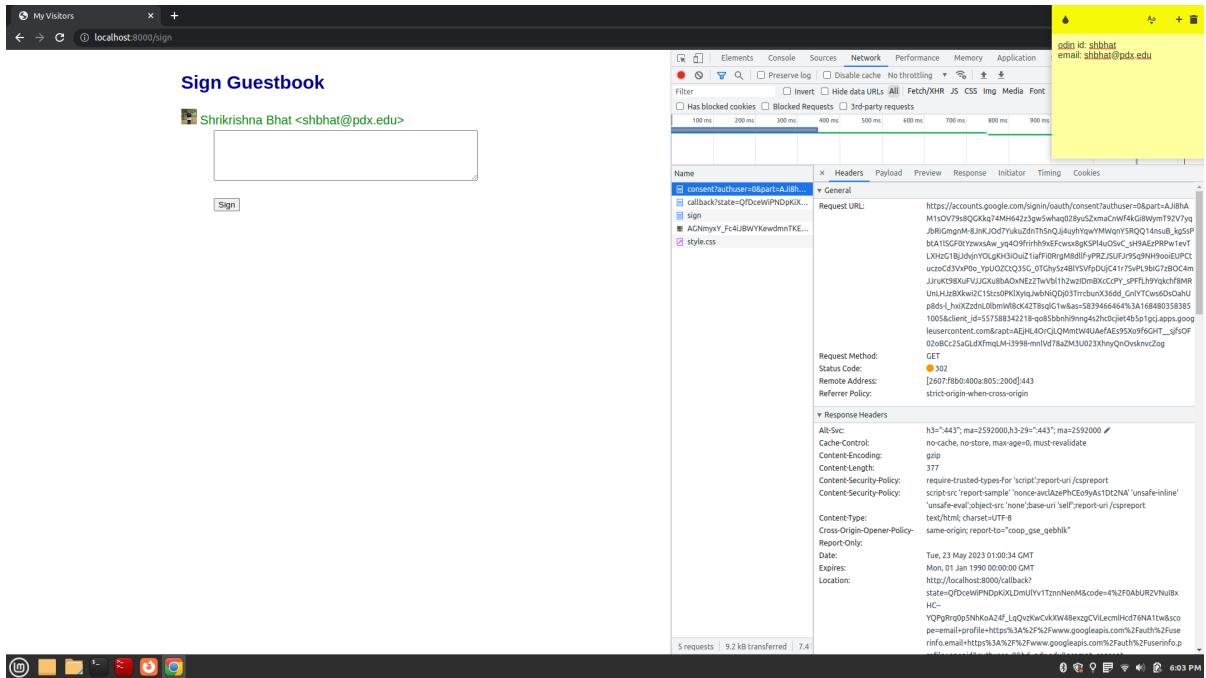
The screenshot shows a browser window with the URL [accounts.google.com/v3/signin/denier?dsh=S2047518075%3A168480443335803&client\\_id=557588342218-qo85bbnh9ng4s2hcocje4bSp1gc.apps.googleusercontent.com&o2v=1&redirect\\_uri=http%3A%2F%2flocalhost%3A8000...](https://accounts.google.com/v3/signin/denier?dsh=S2047518075%3A168480443335803&client_id=557588342218-qo85bbnh9ng4s2hcocje4bSp1gc.apps.googleusercontent.com&o2v=1&redirect_uri=http%3A%2F%2flocalhost%3A8000...). The Network tab in the developer tools is open, showing a list of requests. The first request is a GET to the same URL as the page. The Headers tab is selected, showing various headers like 'Content-Type: application/x-www-form-urlencoded', 'Content-Length: 1005', and 'User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/91.0.4453.114 Safari/537.36'. The Response tab shows a large JSON object containing user information.

### 8.1.2 Based on the description of the source code, what lines of code in our application are responsible for the second request shown?

This code is found in the sign.py and the lines which say are  
`authorization_url, state = google.authorization_url(authorization_base_url)`  
`session['oauth_state'] = state`  
`return redirect(authorization_url)`

**8.1.3 Take a screenshot of the Headers that includes the entire Callback URL and its returned HTTP status code. What location is the User sent to as a result of this request?**

**Answer:** User is sent to /sign location once he successfully signs in and now the user can sign the guestbook.



The screenshot shows a web browser window with the URL `localhost:8000/sign`. The main content area displays a guestbook form with a placeholder for a signature and a "Sign" button. The developer tools Network tab is open, showing the following request details:

- Name:** sign
- Request URL:** `http://localhost:8000/sign`
- Status Code:** 200 OK
- Remote Address:** 127.0.0.1:8000
- Referer Policy:** strict-origin-when-cross-origin
- Response Headers:**
  - Content-Type: text/html; charset=utf-8
  - Date: Tue, 23 May 2023 01:00:35 GMT
  - Server: Werkzeug/2.3.4 Python/3.10.6
  - Vary: Cookie
- Request Headers:**
  - Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,image/apng,\*/\*;q=0.8,application/signed-exchange;v=b3;q=0.7
  - Accept-Encoding: gzip, deflate, br
  - Accept-Language: en-GB,en;q=0.9
  - Connection: keep-alive
  - Cookie: session\_id=JpV9MmYqdgQ\_Z#FwT#; TcSeHtIISjEcKtRbJB1U2d5B0Bf53xu0LzTnVUDfLiorM\_0\_mOVHsklijC\_uj7qM-Kt0SS5kmwDKTmCK8nxJ8R8ScsCWQYPA8W64X5Zj5\_EIGZF331514RzS\_jkBD3ZWZCZdpD29\_ih24WX3lR1fdQcKYbt323PxONnvIT-I4CXgnoJAh\_PdWm-W8YGrQSH4040tqP9WmmtC6dJOTUGCE5S0yX\_G1bUijXJA6KK456Pe-ZPBWryt2d4PR5tUyjXKX2\_Jk-Brr-mOfExtumMoDW4Cg5CnCNvkyWqWUUUGalCxv\_Vybomzbt1sEVSW2YeoX1s1M2d6WPQTn95WVzYzBtPeku05rLnmHwPmhd\_ED9mShT9NYEm1G130igAUUr-; YWV0dWQ0T691B0Q0QgUfHM699J\_K\_AS03tAUvQGG9jmgl8NSkNKZvh5D77c6AV945cC725hmcgntgpt2z5t83rgmc0zvdpQ0P98KXJRKz2iH4t5h1A4\_L02caKX2QhvwXwv0D1t9ArhlyfqGmZvZFCUGU5hcrsrpMhXqVL5GAMh0\_Q\_0n9laQ5QV4mB6dgGpLsvL\_K\_sgrITy4BmOMJ0-; TKY0ZbxnVn-mZzDHCiJtR4WgMD\_1G-hsQgqH-

At the bottom of the Network tab, it says "5 requests | 9.2 kB transferred | 7.4".

### 8.1.4 Find the request within Developer Tools that fetches the embedded image and take a screenshot of its URL.

The screenshot shows a web browser window with the URL `localhost:8000/sign`. The main content area displays a guestbook form with a placeholder for a signature and a "Sign" button. The developer tools Network tab is open, showing the following request details:

- Name:** sign
- Request URL:** `https://lh3.googleusercontent.com/a/AGNmyY_Fc4UBWYKewdmnTKECsdsZ0E96c`
- Status Code:** 200 (from memory cache)
- Remote Address:** [2607:fb0:400:800::200]1443
- Referer Policy:** strict-origin-when-cross-origin
- Response Headers:**
  - Access-Control-Allow-Origin: \*
  - Access-Control-Expose-Headers: Content-Length
  - Headers: Age: 2386 h3=-443; ma=2592000,h3-29=-443; ma=2592000
  - Alt-Svc: h3=-443; ma=2592000,h3-29=-443; ma=2592000
  - Cache-Control: public, max-age=86400, no-transform
  - Content-Disposition: inline; filename="unnamed.jpg"
  - Content-Length: 6953
  - Content-Type: image/jpeg
  - Date: Tue, 23 May 2023 03:37:42 GMT
  - Etag: "v2"
  - Expires: Wed, 24 May 2023 03:37:42 GMT
  - Server: fine
  - Timing-Allow-Origin: \*
  - Vary: Origin
  - X-Content-Type-Options: nosniff
  - X-Xss-Protection: 0
- Request Headers:**
  - Provisional headers are shown. Disable cache to see full headers. [Learn more](#)
  - Referer: `http://localhost:8000/`
  - Sec-Ch-Ua: "Google Chrome";v="113", "Chromium";v="113", "Not-A-Brand";v="24"
  - Sec-Ch-Ua-Mobile: "
  - Sec-Ch-Ua-Platform: "Linux"
  - User-Agent: Mozilla/5.0 (X11; Linux x86\_64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/113.0.0.0 Safari/537.36

At the bottom of the Network tab, it says "3 requests | 1.2 kB transferred | 7.4".

## 8.1.5 Take a screenshot showing multiple authenticated accounts have been able to sign the Guestbook.

The screenshot shows a guestbook application running at `localhost:8000`. The page displays a single entry from "Shrikrishna Bhat <shbhat@pdx.edu>" on May 22, 2023, with the message "hello guestbook". Below the entry is another from "Shrikrishna Bhat <shrikrishna.bht@gmail.com>" on May 22, 2023, with the message "hello from personal mail". A yellow box highlights the status bar information: "odin id: shbhat" and "email: shbhat@pdx.edu".

On the right, the Network tab of the developer tools is open, showing a POST request to `/sign` with a status of 200 OK. The request headers include `Content-Type: application/x-www-form-urlencoded` and `Cookie: session=...`. The response body contains the JSON object `{"id": 1, "name": "Shrikrishna Bhat", "email": "shbhat@pdx.edu", "entry": "hello guestbook", "date": "2023-05-22T00:00:00Z", "ip": "127.0.0.1:8000"}.`

## Card 13

Take a screenshot of the expanded information that includes your OdinId for your lab notebook.

The screenshot shows the "Google Account" settings page for "Apps with access to your account". It lists several apps with access: GitLab, guestbook, Repl.it, Slack, and Zoom. A yellow box highlights the status bar information: "odin id: shbhat" and "email: shbhat@pdx.edu".

## 8.2 G ML APIs

## Card 3

### 8.2.1 Show the output for your lab notebook

### **8.2.2 Answer the following questions:**

- What is the name of the function?

```
def detect_labels_uri(uri):
```

- What type of Vision client is instantiated in it?

## imageAnnotatorClient

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

```
client.label_detection(image=image)
```

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

## labels

response.label\_annotations

### **8.2.3 Take a screenshot of the output for the above commands**

Cloud Shell — Mozilla Firefox

08:2g: ML APIs x Welcome - cloud-Shrik... x Cloud Shell x Lab 8 - Google Docs x psu logo - Google Search x WhatsApp x 9161f59a2f170a27897f8185eb377cf.xslx psu logo - Google Search x

Cloud Shell Editor

cloud-shrikrishna-shbhat X +

```
(env) shbhat@cloudshell:~/python-docs-samples/vision/snippets/detect (cloud-shrikrishna-shbhat)$ wget https://www.logolynx.com/images/logolynx/91/9161f59a2f170a27897f8185eb377cf.jpeg -O image
--2023-05-23 01:51:50- https://www.logolynx.com/images/logolynx/91/9161f59a2f170a27897f8185eb377cf.jpeg
Resolving www.logolynx.com (www.logolynx.com)... 45.141.56.116
Connecting to www.logolynx.com (www.logolynx.com)|45.141.56.116|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 128362 (125K) [image/jpeg]
Saving to: "image"

image                                         100%[=====] 125.35K   315KB/s  in 0.4s

2023-05-23 01:51:51 (315 KB/s) - 'image' saved [128362/128362]

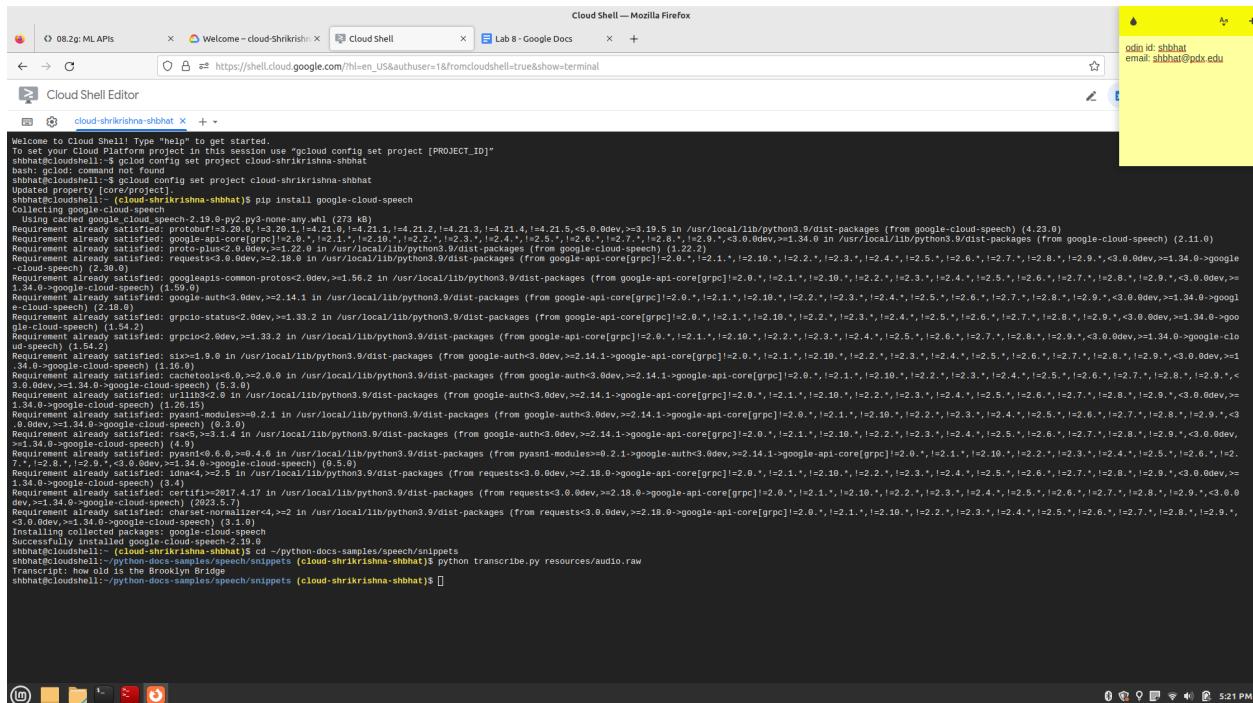
(env) shbhat@cloudshell:~/python-docs-samples/vision/snippets/detect (cloud-shrikrishna-shbhat)$ python detect.py logos image
Logos:
Portland State University
(env) shbhat@cloudshell:~/python-docs-samples/vision/snippets/detect (cloud-shrikrishna-shbhat)$
```

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

```
def detect_logos()
```

## Card 4

### 8.2.5 Show the output for your lab notebook



The screenshot shows a Cloud Shell terminal window in Mozilla Firefox. The terminal output is as follows:

```
Welcome to Cloud Shell! Type "help" for get started.
To set your Cloud Platform project in this session use "gcloud config set project [PROJECT_ID]"
shbhat@cloudshell:~$ gcloud config set project cloud-shrirkishna-shbhat
bash: gcloud: command not found
shbhat@cloudshell:~$ gcloud config set project cloud-shrirkishna-shbhat
Updating configuration...
shbhat@cloudshell:~$ (cloud-shrirkishna-shbhat)$ pip install google-cloud-speech
Collecting google-cloud-speech
  Using cached google-cloud-speech-2.18.0-py2.py3-none-any.whl (723 kB)
Requirement already satisfied: protobuf<3.20.0,!=3.20.1,!=4.21.1,!=4.21.2,!=4.21.3,!=4.21.4,!=4.21.5,<5.0.0dev,>=3.19.5.5 in /usr/local/lib/python3.9/dist-packages (from google-cloud-speech) (4.23.0)
Requirement already satisfied: google-api-core[gRPC]<2.0.0,!=2.1.0,!=2.2.0,!=2.3.0,!=2.4.0,!=2.5.0,!=2.6.0,!=2.7.0,!=2.8.0,!=2.9.0,>=3.0.0dev,>=1.34.0 in /usr/local/lib/python3.9/dist-packages (from google-cloud-speech) (2.11.0)
Requirement already satisfied: proto-plus<2.0.0dev,>=1.22.0 in /usr/local/lib/python3.9/dist-packages (from google-cloud-speech) (1.22.2)
Requirement already satisfied: requests<3.0.0dev,>=2.18.0 in /usr/local/lib/python3.9/dist-packages (from google-api-core[gRPC]<2.0.0,!=2.1.0,!=2.2.0,!=2.3.0,!=2.4.0,!=2.5.0,!=2.6.0,!=2.7.0,!=2.8.0,!=2.9.0,>=3.0.0dev,>=1.34.0>google-cloud-speech) (2.30.0)
Requirement already satisfied: googleapis-common-protos<2.0.0dev,>=1.56.2 in /usr/local/lib/python3.9/dist-packages (from google-api-core[gRPC]<2.0.0,!=2.1.0,!=2.2.0,!=2.3.0,!=2.4.0,!=2.5.0,!=2.6.0,!=2.7.0,!=2.8.0,!=2.9.0,>=3.0.0dev,>=1.34.0>google-cloud-speech) (1.59.0)
Requirement already satisfied: google-auth<3.0.0dev,>=2.14.1 in /usr/local/lib/python3.9/dist-packages (from google-api-core[gRPC]<2.0.0,!=2.1.0,!=2.2.0,!=2.3.0,!=2.4.0,!=2.5.0,!=2.6.0,!=2.7.0,!=2.8.0,!=2.9.0,>=3.0.0dev,>=1.34.0>google-cloud-speech) (2.18.0)
Requirement already satisfied: requests<3.0.0dev,>=2.18.2 in /usr/local/lib/python3.9/dist-packages (from google-api-core[gRPC]<2.0.0,!=2.1.0,!=2.2.0,!=2.3.0,!=2.4.0,!=2.5.0,!=2.6.0,!=2.7.0,!=2.8.0,!=2.9.0,>=3.0.0dev,>=1.34.0>google-cloud-speech) (2.18.2)
Requirement already satisfied: grpcio<2.0.0dev,>=1.33.2 in /usr/local/lib/python3.9/dist-packages (from google-api-core[gRPC]<2.0.0,!=2.1.0,!=2.2.0,!=2.3.0,!=2.4.0,!=2.5.0,!=2.6.0,!=2.7.0,!=2.8.0,!=2.9.0,>=3.0.0dev,>=1.34.0>google-cloud-speech) (1.54.2)
Requirement already satisfied: six<1.9.0 in /usr/local/lib/python3.9/dist-packages (from google-auth<3.0.0dev,>=2.14.1>google-api-core[gRPC]<2.0.0,!=2.1.0,!=2.2.0,!=2.3.0,!=2.4.0,!=2.5.0,!=2.6.0,!=2.7.0,!=2.8.0,!=2.9.0,>=3.0.0dev,>=1.34.0>google-cloud-speech) (1.16.0)
Requirement already satisfied: cachetools<0.2.0.0 in /usr/local/lib/python3.9/dist-packages (from google-auth<3.0.0dev,>=2.14.1>google-api-core[gRPC]<2.0.0,!=2.1.0,!=2.2.0,!=2.3.0,!=2.4.0,!=2.5.0,!=2.6.0,!=2.7.0,!=2.8.0,!=2.9.0,>=3.0.0dev,>=1.34.0>google-cloud-speech) (0.15.0)
Requirement already satisfied: urllib3<2.0 in /usr/local/lib/python3.9/dist-packages (from google-auth<3.0.0dev,>=2.14.1>google-api-core[gRPC]<2.0.0,!=2.1.0,!=2.2.0,!=2.3.0,!=2.4.0,!=2.5.0,!=2.6.0,!=2.7.0,!=2.8.0,!=2.9.0,>=3.0.0dev,>=1.34.0>google-cloud-speech) (1.26.15)
Requirement already satisfied: pyasn1<0.2.0 in /usr/local/lib/python3.9/dist-packages (from google-auth<3.0.0dev,>=2.14.1>google-api-core[gRPC]<2.0.0,!=2.1.0,!=2.2.0,!=2.3.0,!=2.4.0,!=2.5.0,!=2.6.0,!=2.7.0,!=2.8.0,!=2.9.0,>=3.0.0dev,>=1.34.0>google-cloud-speech) (0.3.0)
Requirement already satisfied: rsa<3.1.4 in /usr/local/lib/python3.9/dist-packages (from google-auth<3.0.0dev,>=2.14.1>google-api-core[gRPC]<2.0.0,!=2.1.0,!=2.2.0,!=2.3.0,!=2.4.0,!=2.5.0,!=2.6.0,!=2.7.0,!=2.8.0,!=2.9.0,>=3.0.0dev,>=1.34.0>google-cloud-speech) (4.9)
Requirement already satisfied: pyasn1-modules<0.1.0 in /usr/local/lib/python3.9/dist-packages (from pyasn1<0.2.0>=0.1>google-auth<3.0.0dev,>=2.14.1>google-api-core[gRPC]<2.0.0,!=2.1.0,!=2.2.0,!=2.3.0,!=2.4.0,!=2.5.0,!=2.6.0,!=2.7.0,!=2.8.0,!=2.9.0,>=3.0.0dev,>=1.34.0>google-cloud-speech) (0.5.0)
Requirement already satisfied: certifi<2017.4.17 in /usr/local/lib/python3.9/dist-packages (from requests<3.0.0dev,>=2.18.0>google-api-core[gRPC]<2.0.0,!=2.1.0,!=2.2.0,!=2.3.0,!=2.4.0,!=2.5.0,!=2.6.0,!=2.7.0,!=2.8.0,!=2.9.0,>=3.0.0dev,>=1.34.0>google-cloud-speech) (2023.5.7)
Requirement already satisfied: idna<4.0.0 in /usr/local/lib/python3.9/dist-packages (from requests<3.0.0dev,>=2.18.0>google-api-core[gRPC]<2.0.0,!=2.1.0,!=2.2.0,!=2.3.0,!=2.4.0,!=2.5.0,!=2.6.0,!=2.7.0,!=2.8.0,!=2.9.0,>=3.0.0dev,>=1.34.0>google-cloud-speech) (3.1.0)
Installing collected packages: google-cloud-speech
  Skipping google-cloud-speech (from -r requirements.txt (line 1))
  Skipping google-cloud-speech (from -r requirements.txt (line 2))
  Skipping google-cloud-speech (from -r requirements.txt (line 3))
  Skipping google-cloud-speech (from -r requirements.txt (line 4))
shbhat@cloudshell:~$ (cloud-shrirkishna-shbhat)$ cd /python-docs-samples/speech/snippets
shbhat@cloudshell:~/python-docs-samples/speech/snippets$ (cloud-shrirkishna-shbhat)$ python transcribe.py resources/audio.raw
Transcript: how old is the Brooklyn Bridge
shbhat@cloudshell:~/python-docs-samples/speech/snippets$ (cloud-shrirkishna-shbhat)$
```

### 8.2.6 Answer the questions:

- **What is the name of the function?**  
transcribe\_file(speech\_file)
- **What method is invoked in the Speech client to perform the detection?**  
client.recognize(config=config, audio=audio)
- **What is the name of the attribute in the response object that contains the results we seek?**  
response.results

## Card 5

### **8.2.7 Show the output for your lab notebook**

### **8.2.8 Answer the questions**

- What is the name of the function?

`translate_text(target: str, text: str) -> dict`

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

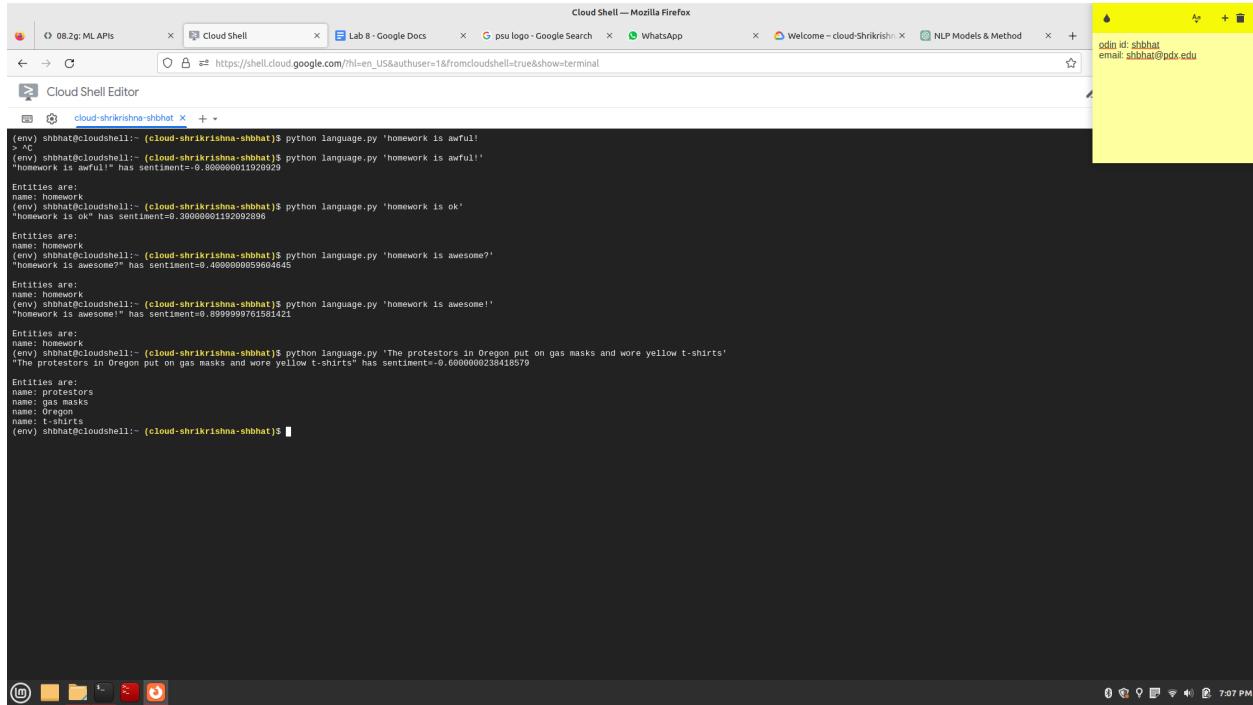
```
translate_client.translate(text, target_language=target)
```

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

result["translatedText"]

## Card 6

### 8.2.9 Show the output for your lab notebook



```
(env) shbhat@cloudshell:~ (cloud-shrkrishna-shbhat)$ python language.py 'homework is awful!'
(env) shbhat@cloudshell:~ (cloud-shrkrishna-shbhat)$ python language.py 'homework is awful!
"homework is awful!" has sentiment=-0.800000011920929
Entities are:
name: homework
(env) shbhat@cloudshell:~ (cloud-shrkrishna-shbhat)$ python language.py 'homework is ok'
"homework is ok" has sentiment=0.3000000119392096
Entities are:
name: homework
(env) shbhat@cloudshell:~ (cloud-shrkrishna-shbhat)$ python language.py 'homework is awesome?'
"homework is awesome?" has sentiment=0.4000000059604645
Entities are:
name: homework
(env) shbhat@cloudshell:~ (cloud-shrkrishna-shbhat)$ python language.py 'homework is awesome!'
"homework is awesome!" has sentiment=0.8999999761581421
Entities are:
name: protestors
name: gas masks
name: oregon
name: t-shirts
(env) shbhat@cloudshell:~ (cloud-shrkrishna-shbhat)$ python language.py 'The protestors in Oregon put on gas masks and wore yellow t-shirts'
"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
(env) shbhat@cloudshell:~ (cloud-shrkrishna-shbhat)$
```

## Card 8

### 8.2.10 Answer the questions:

- **What is the name of the function that performs the transcription?**  
Answer: transcribe\_gcs()
- **What is the name of the function that performs the translation?**  
Answer: translate\_text()
- **What is the name of the function that performs the entity analysis on the translation?**  
Answer: entities\_text()
- **What is the name of the function that performs the entity analysis on the image?**

Answer: detect\_labels\_uri()

## Card 9

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

**The answer is the same for all the 3 questions in this card.**

Based on the results from the APIs, if the program deems the audio and image as unrelated when they should be related, there are a few possible changes that can be made to address this issue:

Adjust the language code: Make sure that the correct language code is provided when calling the transcribe\_gcs function. In the given example, the language code is set to de-DE, which corresponds to German. If the audio is actually in a different language, such as English, then the language code should be changed accordingly.

Improve the translation: If the translation from the detected language to English is not accurate, it can result in unrelated entities. You can explore using more advanced translation techniques or language models to improve the translation accuracy. You could try using a different translation service or model, or fine-tuning the translation model with domain-specific data if available.

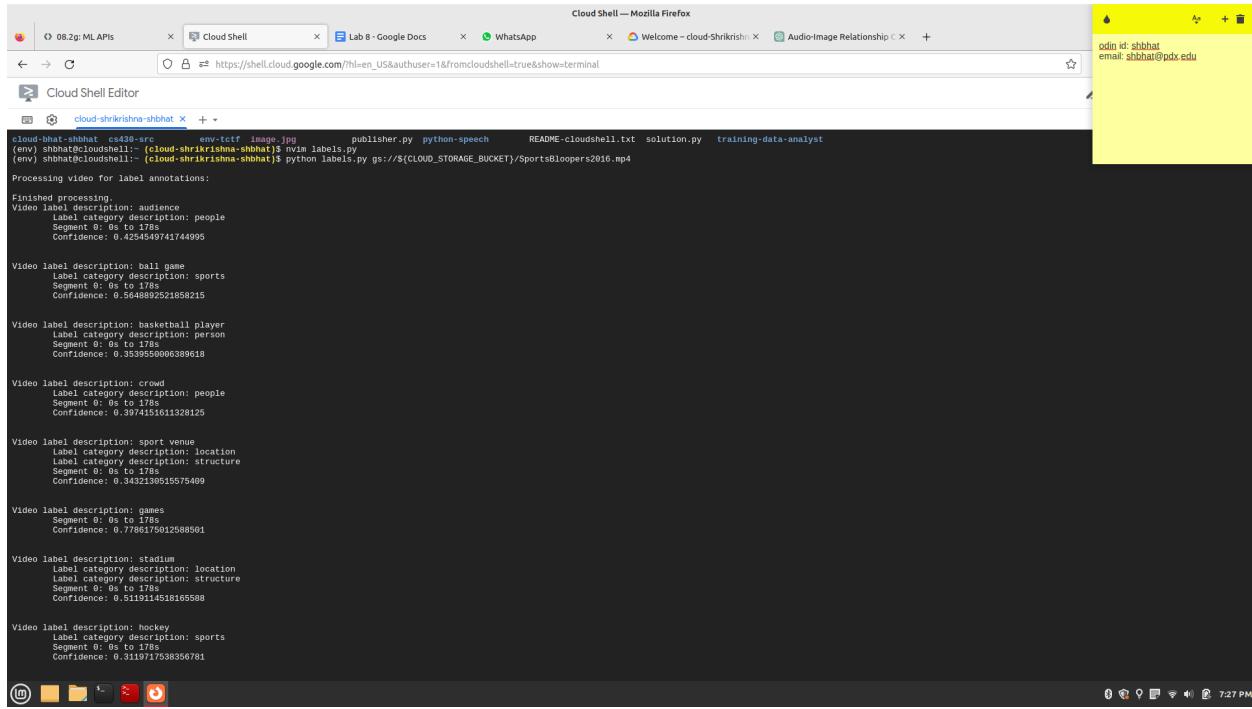
Refine entity analysis: The entities\_text function performs entity analysis on the translated text. If the analysis is not accurately capturing the relevant entities, you could consider using a different natural language processing technique or model for entity extraction. You could explore using more advanced techniques like named entity recognition (NER) or entity linking to improve the entity analysis results.

Fine-tune image analysis: The detect\_labels\_uri function analyzes the labels in the provided image. If the labels generated are not capturing the relevant information, you could try using a more advanced image recognition model or techniques like object detection to improve the label analysis.

By refining and improving these different stages of analysis, you can enhance the program's ability to accurately determine the relationship between the audio and the image.

## Card 13

**8.2.12 What are the top 3 labels that the Video Intelligence API associates with the video and what is its confidence in them?**



```
Cloud Shell — Mozilla Firefox
Cloud Shell Editor
cloud-shrikrishna-shbhat cloud-shell + 
cloud-shrikrishna-shbhat cs430-src env-icif image.jpg publisher.py python-speech README-cloudshell.txt solution.py training-data-analyst
(env) shbhat@cloudshell:[cloud-shrikrishna-shbhat]$ nvim labels.py
(env) shbhat@cloudshell:[cloud-shrikrishna-shbhat]$ python labels.py gs://$(CLOUD_STORAGE_BUCKET)/SportsBloopers2016.mp4

Processing video for label annotations:
Finished processing.
Video label description: audience
Label category description: people
Segment 0: 0s to 17s
Confidence: 0.422459741744995

Video label description: ball game
Label category description: sports
Segment 0: 0s to 17s
Confidence: 0.504682523058215

Video label description: basketball player
Label category description: person
Segment 0: 0s to 17s
Confidence: 0.3539559006389619

Video label description: crowd
Label category description: people
Segment 0: 0s to 17s
Confidence: 0.3974151613128125

Video label description: sport venue
Label category description: location
Label category description: structure
Segment 0: 0s to 17s
Confidence: 0.3432130515575409

Video label description: stadium
Label category description: location
Label category description: structure
Segment 0: 0s to 17s
Confidence: 0.5119114518165588

Video label description: hockey
Label category description: sports
Segment 0: 0s to 17s
Confidence: 0.3119717538356781
```

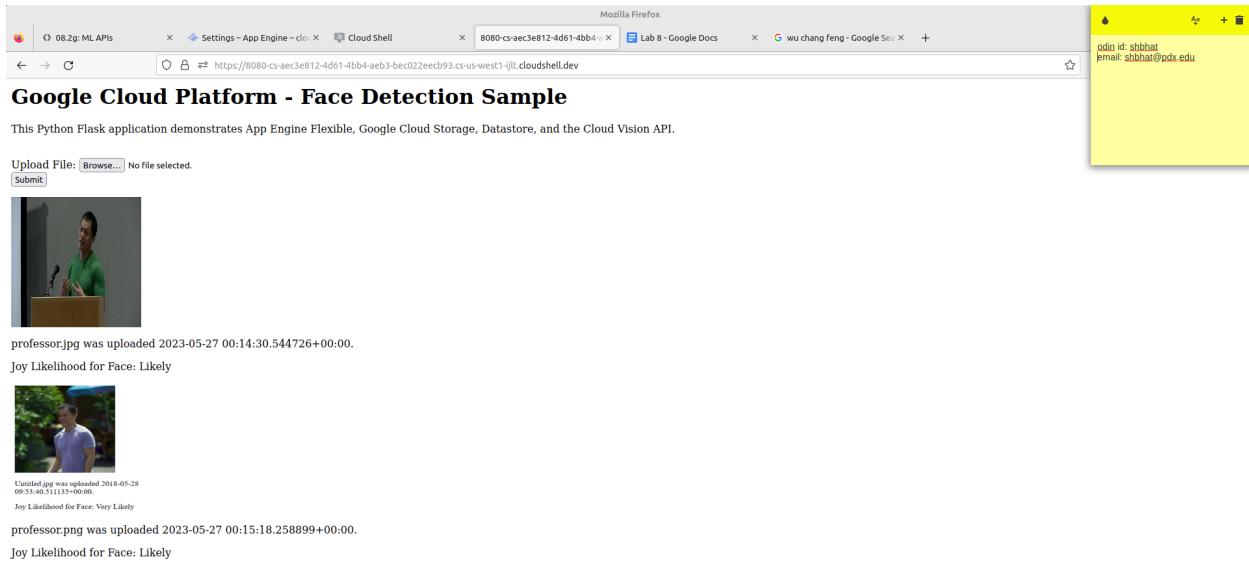
**8.2.13 What is the name of the client class in the package that is used? `videointelligence.VideoIntelligenceServiceClient`.**

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

The method used in that class to perform the annotation is `annotate_video`.

## Card 16

### 8.2.15 Take a screenshot for your lab notebook that includes the URL



## Card 17

### 8.2.16 Answer the following questions.

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

**Answer:** `query = datastore_client.query(kind="Faces")`, this line creates query for previous detection.

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

**Answer:** `image_entities = list(query.fetch())` this line sends the query to cloud database.

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

**Answer:** `bucket = storage_client.get_bucket(CLOUD_STORAGE_BUCKET)`

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

**Answer:** `photo = request.files["file"]`

- 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?**

`faces = vision_client.face_detection(image=image).face_annotations`

This line calls the `face_detection` method of the `vision_client` and retrieves the detected faces as `face_annotations`.

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

**`blob_name`: The name of the blob (image file) in the storage bucket.**

**`image_public_url`: The publicly accessible URL of the image.**

**`timestamp`: The date and time of the upload.**

**`joy`: The likelihood that the detected face displays 'joy.'**

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

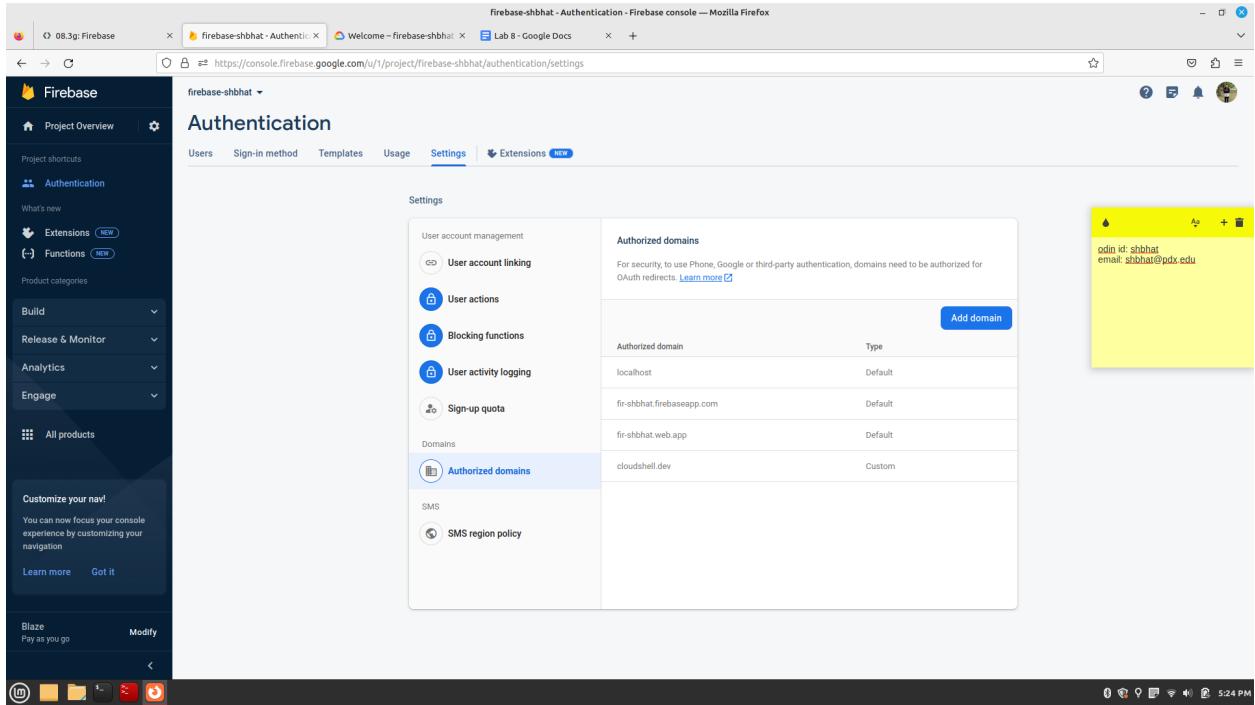
A new entity will be created in the cloud datastore with the information about the uploaded photo and the analyzed face.

The entity is saved to Cloud Datastore and we will be redirected to the home page.

# 8.3G Firebase

## Card 4

### 8.3.1 What other domains are given access to this Firebase project by default?



The screenshot shows the Firebase Authentication settings page in the Firebase console. The left sidebar has 'Authentication' selected. The main area is titled 'Settings' under 'User account management'. On the right, there's a table for 'Authorized domains'.

Authorized domain	Type
localhost	Default
fir-shbhat.firebaseio.com	Default
fir-shbhat.web.app	Default
cloudshell.dev	Custom

Below the table, there's a section for 'SMS' with an 'SMS region policy' link.

At the top right of the page, there's a yellow sidebar with user information: 'odin id: shbhat' and 'email: shbhat@pdx.edu'.

## Card 8

### 8.3.2 Take a screenshot of the first 10 lines of the produced file.

The screenshot shows a Mozilla Firefox browser window with several tabs open. The active tab is 'Cloud Shell — Mozilla Firefox' which displays the content of 'index.js'. The code in 'index.js' starts with a warning about the use of eval-source-map devtool. Below this, it includes standard boilerplate for a webpack configuration, including 'use strict', module resolution rules, and a list of imported modules. The terminal window below shows the user navigating through a directory structure, likely within a Firebase project, and running commands related to webpack and firebase. The terminal output is mostly illegible due to the small font size.

## Card 12

### 8.3.3 Answer the questions.

- **What missing functions deal with user authentication?**

`signIn()`: Implements Google Sign-In functionality using Firebase authentication.

`signOutUser()`: Signs out the user from Firebase.

`initFirebaseAuth()`: Initializes Firebase authentication and subscribes to the user's signed-in status.

`getProfilePicUrl()`: Returns the signed-in user's profile picture URL.

`getUserName()`: Returns the signed-in user's display name.

`isUserSignedIn()`: Returns true if a user is signed-in, otherwise false.

`authStateObserver(user)`: Triggers when the auth state changes, such as when the user signs in or signs out.

- **What missing functions deal with sending and receiving messages?**

`saveMessage(messageText)`: Saves a new message to Cloud Firestore.

`loadMessages()`: Loads the chat message history and listens for new messages.

`saveImageMessage(file)`: Saves a new message containing an image to Firebase, including uploading the image to Firebase Storage.

`deleteMessage(id)`: Deletes a message from the UI.

`createAndInsertMessage(id, timestamp)`: Creates and inserts a message in the UI.

`displayMessage(id, timestamp, name, text, picUrl, imageUrl)`: Displays a message in the UI.

## Card 13

### 8.3.3 Answer the questions.

- What are the names of the elements that are hidden when the user is signed out?

`userNameElement`, `userPicElement`, `signOutButtonElement`

- What is the name of the element that is not hidden when the user is signed out?

`signInButtonElement`

## Card 16

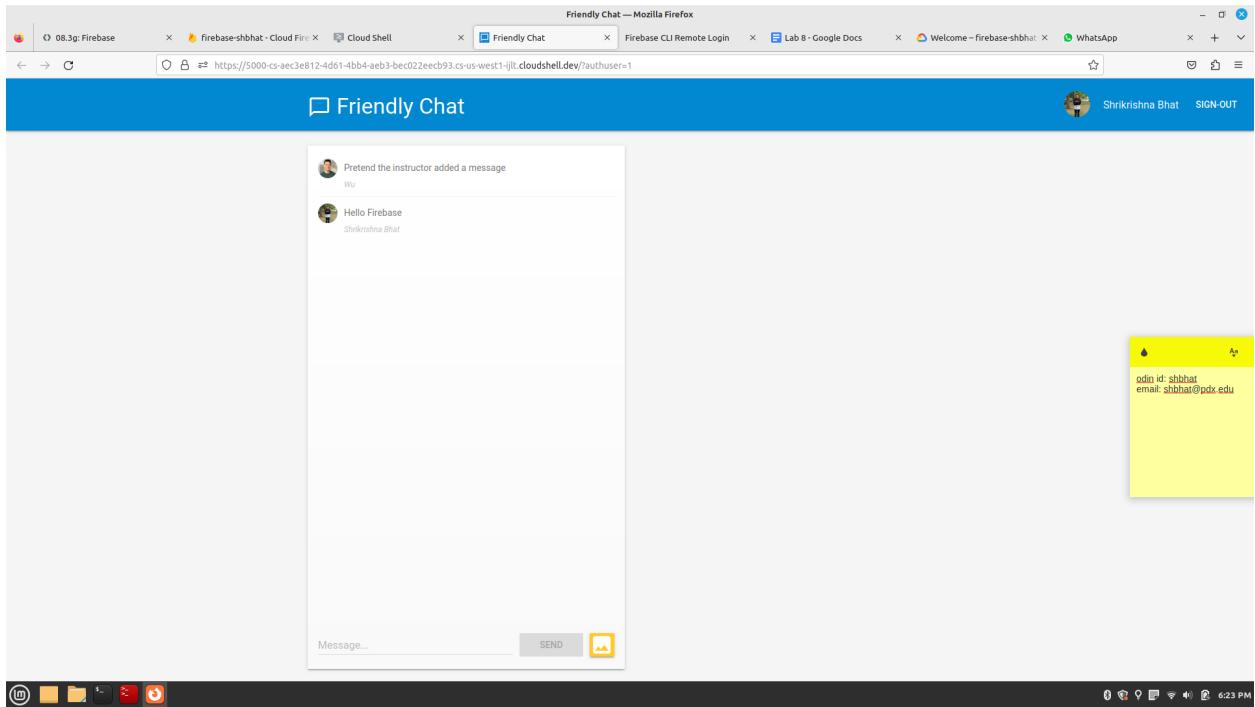
### 8.3.4 Include a screenshot of the message and its fields in the database for your lab notebook

The screenshot shows the Firebase Cloud Firestore console in Mozilla Firefox. The URL is `https://console.firebaseio.google.com/u/1/project.firebaseio.shbhat.firebaseio/data/-2F5t0ba5aR0LrMPQVq3i2y`. The left sidebar shows project navigation with 'Extensions' selected. The main area displays a 'Cloud Firestore' view with a 'Data' tab selected. A message document is shown under the 'messages' collection. The document ID is `5t0ba5aR0LrMPQVq3i2y`. The document fields are:

- `name`: "Shrikrishna Bhat"
- `profilePicUrl`: "`https://lh3.googleusercontent.com/a/AGNmyY_Fc4LBWYKewdmnTKEaGCsdZs0kRyhKFBlgvE=s96-c`"
- `text`: "Hello Firebase"
- `timestamp`: May 23, 2023 at 6:17:53 PM UTC-7

## Card 17

**8.3.5 Include a screenshot of the application with its two messages for your lab notebook**



## Card 18

**8.3.6 What is the URL of the image that is first shown in the UI as the message is loading?**

<https://www.google.com/images/spin-32.gif?a>

# Card 19

## 8.3.7 Answer the questions

- How do the fields in an image document differ from that of the text document?

**Text document has name, profilePicUrl, text, timestamp**

**Image document has imageUrl, name, profilePicUrl, storageUri, timestamp**

- What URL and storage location can the image be found at?

**URL:**

[https://firebasestorage.googleapis.com/v0/b.firebaseio-shbhat-388216.appspot.com/o/Q39L0uuZ3MShdEKHT6ZkJfMLN33%2FMdmaNV1uIycSGkKHjIfT%2Fzombie-949916\\_1280.jpg?alt=media&token=be51a4a2-51a7-4133-95c6-ebf67144fb59](https://firebasestorage.googleapis.com/v0/b.firebaseio-shbhat-388216.appspot.com/o/Q39L0uuZ3MShdEKHT6ZkJfMLN33%2FMdmaNV1uIycSGkKHjIfT%2Fzombie-949916_1280.jpg?alt=media&token=be51a4a2-51a7-4133-95c6-ebf67144fb59)

**Storage Lcoation:**

gs://firebase-shbhat-388216.appspot.com/Q39L0uuZ3MShdEKHT6ZkJfMLN33/MdmaNV1uIycSGkKHjIfT/zombie-949916\_1280.jpg

## 8.3.8 Take a screenshot of the image in the storage bucket for your lab notebook.

The screenshot shows the Firebase Storage console interface. On the left, there's a sidebar with project navigation and settings. The main area displays a list of files under a specific storage reference. One file is selected: "zombie-949916\_1280.jpg". To the right of the file list, there's a preview of the image, its metadata (name, size, type, creation and update times), and a detailed view of its storage location and access token. A yellow sticky note is overlaid on the top right of the screen, containing the text "odin id: shbhat" and "email: shbhat@pdx.edu".

**File Details:**

- Name: zombie-949916\_1280.jpg
- Size: 119,417 bytes
- Type: Image/jpeg
- Created: May 29, 2023, 9:55:22 AM
- Updated: May 29, 2023, 9:55:22 AM

**Storage location:**

gs://firebase-shbhat-388216.appspot.com/Q39L0uuZ3MShdEKHT6ZkJfMLN33/MdmaNV1uIycSGkKHjIfT/zombie-949916\_1280.jpg

**Access token:**

be51a4a2-51a7-4133-95c6-ebf67144fb59

## Card 20

### 8.3.9 What directory is the application going to be served from?

~/codelab-friendlychat-web/web-start/src

### 8.3.10 Take a screenshot of the message including the URL for your lab notebook.

