

## 1. Cloud Functions

- no screenshots or observations

## 2. REST API (GET)

- no screenshots or observations

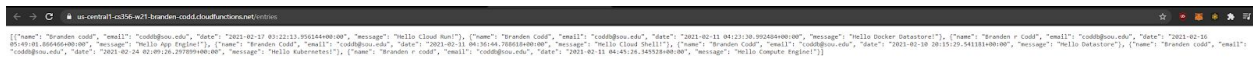
## 3. REST API (POST)

- no screenshots or observations

## 4. Deploy the API

- Still getting forbidden access on entry even after deleting the functions. Going to proceed anyway.

### Entires



```
[{"name": "Branden Codd", "email": "codd@osu.edu", "date": "2021-02-17 03:22:13.950440000", "message": "Hello Cloud Run!"}, {"name": "Branden Codd", "email": "codd@osu.edu", "date": "2021-02-11 04:22:30.352404000", "message": "Hello Docker Detectors!"}, {"name": "Branden Codd", "email": "codd@osu.edu", "date": "2021-02-16 05:45:00.000000000", "message": "Hello App Engine!"}, {"name": "Branden Codd", "email": "codd@osu.edu", "date": "2021-02-11 04:20:04.355000000", "message": "Hello Cloud Shell!"}, {"name": "Branden Codd", "email": "codd@osu.edu", "date": "2021-02-16 20:10:25.541310000", "message": "Hello Detectors!"}, {"name": "Branden Codd", "email": "codd@osu.edu", "date": "2021-02-24 02:09:10.297091000", "message": "Hello Kubernetes!"}, {"name": "Branden Codd", "email": "codd@osu.edu", "date": "2021-02-11 04:43:24.345320000", "message": "Hello Compute Engine!"}]
```

### Entry



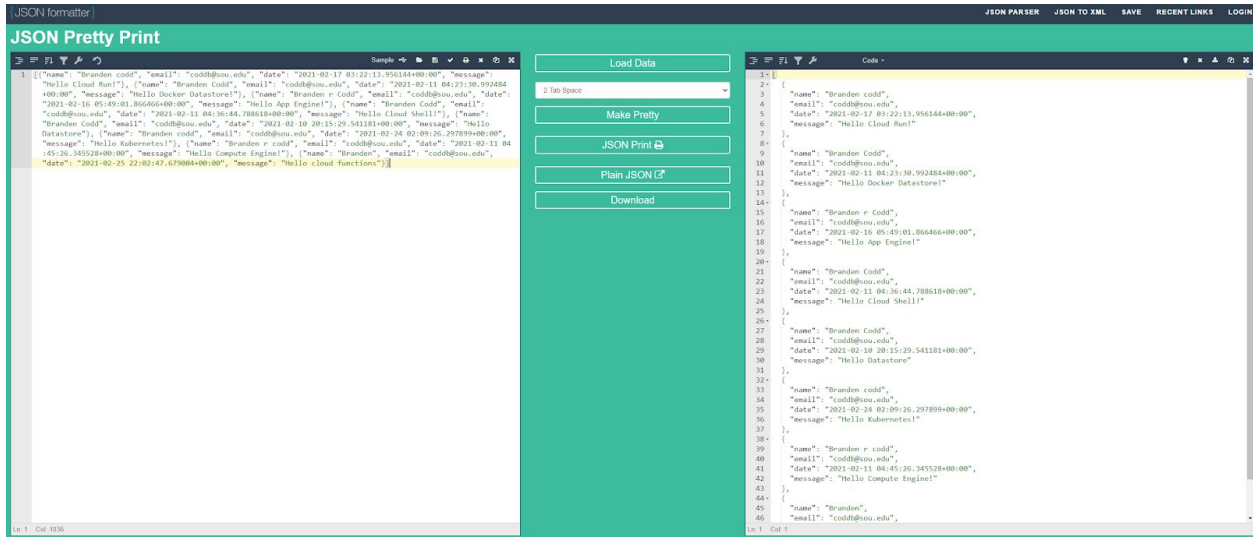
us-central1-cs356-w21-branden-codd.cloudfunctions.net/entry

### Forbidden

You don't have the permission to access the requested resource. It is either read-protected or not readable by the server.

## 5. Test the API via Cloud Functions (POST)

- Take a screenshot of the output. As the output shows, the Guestbook is returned as a list of entries with each one consisting of 4 key-value pairs.



## 6. Test the API via Python Requests (GET)

Using the interpreter and the `resp` object, use Python's `print()` function to show the following for the response:

- Response HTTP `status_code`

```
>>> print(resp.status_code)
200
>>>
```

- Response headers

```
>>> print(resp.headers)
{'Access-Control-Allow-Origin': '*', 'Content-Type': 'application/json', 'Function-Execution-Id': '0iis30ynx1le', 'X-Cloud-Trace-Context': '65cd9435e7937469d18a704e63acfbd1;o=1', 'Date': 'Fri, 26 Feb 2021 02:32:30 GMT', 'Server': 'Google Frontend', 'Content-Length': '1475', 'Alt-Svc': 'h3-29=":443"; ma=2592000,h3-T051=":443"; ma=2592000,h3-Q050=":443"; ma=2592000,h3-Q046=":443"; ma=2592000,h3-Q043=":443"; ma=2592000,quic=":443"; ma=2592000; v="46,43"'}
>>>
```

- Data type of the response headers (using the `type()` function of Python)

```
>>> print(type(resp.headers))
<class 'requests.structures.CaseInsensitiveDict'>
>>>
```

- Response text

```
>>> print(resp.text)
[{"name": "Branden codd", "email": "coddbsou.edu", "date": "2021-02-17 03:22:13.956144+00:00", "message": "Hello Cloud Run!"}, {"name": "Branden r Codd", "email": "coddbsou.edu", "date": "2021-02-11 04:23:30.992484+00:00", "message": "Hello Docker Datastore!"}, {"name": "Branden r Codd", "email": "coddbsou.edu", "date": "2021-02-16 05:49:01.866466+00:00", "message": "Hello App Engine!"}, {"name": "Branden Codd", "email": "coddbsou.edu", "date": "2021-02-11 04:36:44.788618+00:00", "message": "Hello Cloud Shell!"}, {"name": "Branden Codd", "email": "coddbsou.edu", "date": "2021-02-10 20:15:29.541181+00:00", "message": "Hello Datastore"}, {"name": "Branden", "email": "coddbsou.edu", "date": "2021-02-26 00:30:23.243983+00:00", "message": "Hello Cloud Functions from Python Requests!"}, {"name": "Branden codd", "email": "coddbsou.edu", "date": "2021-02-24 02:09:26.297899+00:00", "message": "Hello Kubernetes!"}, {"name": "Branden r codd", "email": "coddbsou.edu", "date": "2021-02-11 04:45:26.345528+00:00", "message": "Hello Compute Engine!"}, {"name": "Branden Codd", "email": "coddbsou.edu", "date": "2021-02-26 00:53:54.645211+00:00", "message": "Hello Cloud Functions from SPA!"}, {"name": "Branden", "email": "coddbsou.edu", "date": "2021-02-25 22:02:47.679004+00:00", "message": "Hello cloud functions"}, {"name": "Branden codd", "email": "coddbsou.edu", "date": "2021-02-26 00:59:17.447169+00:00", "message": "Hello Cloud Functions from SPA in GCS!"}]
>>>
```

- Data type of the response text

```
>>> print(type(resp.text))
<class 'str'>
>>>
```

- Response JSON

```
>>> print(resp.json)
<bound method Response.json of <Response [200]>>
>>>
```

- Data type of the response JSON

```
>>> print(type(resp.json))
<class 'method'>
>>>
```

Then, assign the response JSON to a variable and use the interpreter to individually print the name, email, signed\_on, and message of the first Guestbook entry returned. Refer back to this sequence as needed when integrating a REST API into applications you write.

```
>>> import json
>>> resp_dict = json.loads(resp.text)
>>> print(resp_dict)
[{"name": "Branden codd", "email": "coddbsou.edu", "date": "2021-02-17 03:22:13.956144+00:00", "message": "Hello Cloud Run!"}, {"name": "Branden r Codd", "email": "coddbsou.edu", "date": "2021-02-11 04:23:30.992484+00:00", "message": "Hello Docker Datastore!"}, {"name": "Branden r Codd", "email": "coddbsou.edu", "date": "2021-02-16 05:49:01.866466+00:00", "message": "Hello App Engine!"}, {"name": "Branden Codd", "email": "coddbsou.edu", "date": "2021-02-11 04:36:44.788618+00:00", "message": "Hello Cloud Shell!"}, {"name": "Branden Codd", "email": "coddbsou.edu", "date": "2021-02-10 20:15:29.541181+00:00", "message": "Hello Datastore"}, {"name": "Branden", "email": "coddbsou.edu", "date": "2021-02-26 00:30:23.243983+00:00", "message": "Hello Cloud Functions from Python Requests!"}, {"name": "Branden codd", "email": "coddbsou.edu", "date": "2021-02-24 02:09:26.297899+00:00", "message": "Hello Kubernetes!"}, {"name": "Branden r codd", "email": "coddbsou.edu", "date": "2021-02-11 04:45:26.345528+00:00", "message": "Hello Compute Engine!"}, {"name": "Branden Codd", "email": "coddbsou.edu", "date": "2021-02-26 00:53:54.645211+00:00", "message": "Hello Cloud Functions from SPA!"}, {"name": "Branden", "email": "coddbsou.edu", "date": "2021-02-25 22:02:47.679004+00:00", "message": "Hello cloud functions"}, {"name": "Branden codd", "email": "coddbsou.edu", "date": "2021-02-26 00:59:17.447169+00:00", "message": "Hello Cloud Functions from SPA in GCS!"}]
>>> print(resp_dict[0])
{'name': 'Branden codd', 'email': 'coddbsou.edu', 'date': '2021-02-17 03:22:13.956144+00:00', 'message': 'Hello Cloud Run!'}
>>>
```

## 7. Test the API via Python Requests (POST)

```
>>> print(resp.status_code)
200
>>> print(resp.headers)
{'Access-Control-Allow-Origin': '*', 'Content-Type': 'application/json', 'Function-Execution-Id': 'gc0swhymbxym', 'X-Cloud-Trace-Context': '9a1e4a084ee5abiedfb8501ad8287433;o=1', 'Date': 'Fri, 26 Feb 2021 00:30:23 GMT', 'Server': 'Google Frontend', 'Content-Length': '1184', 'Alt-Svc': 'h3-29=":443"; ma=2592000,h3-T051=":443"; ma=2592000,h3-Q050=":443"; ma=2592000,h3-Q046=":443"; ma=2592000,h3-Q043=":443"; ma=2592000,quic=":443"; ma=2592000; v="46,43"'}
>>> print(resp.text)
[{"name": "Branden codd", "email": "codd@sou.edu", "date": "2021-02-17 03:22:13.956144+00:00", "message": "Hello Cloud Run!"}, {"name": "Branden Codd", "email": "codd@sou.edu", "date": "2021-02-11 04:23:30.992484+00:00", "message": "Hello Docker Datastore!"}, {"name": "Branden r Codd", "email": "codd@sou.edu", "date": "2021-02-16 05:49:01.866466+00:00", "message": "Hello App Engine!"}, {"name": "Branden Codd", "email": "codd@sou.edu", "date": "2021-02-11 04:36:44.788618+00:00", "message": "Hello Cloud Shell!"}, {"name": "Branden Codd", "email": "codd@sou.edu", "date": "2021-02-10 20:15:29.541181+00:00", "message": "Hello Datastore"}, {"name": "Branden", "email": "codd@sou.edu", "date": "2021-02-26 00:30:23.243983+00:00", "message": "Hello Cloud Functions from Python Requests!"}, {"name": "Branden codd", "email": "codd@sou.edu", "date": "2021-02-24 02:09:26.297899+00:00", "message": "Hello Kubernetes!"}, {"name": "Branden r codd", "email": "codd@sou.edu", "date": "2021-02-11 04:45:26.345528+00:00", "message": "Hello Compute Engine!"}, {"name": "Branden", "email": "codd@sou.edu", "date": "2021-02-25 22:02:47.679004+00:00", "message": "Hello cloud functions"}]
>>>
```

## 8. Client-side Guestbook application

- no screenshots or observations

## 9. guestbook.js

- no screenshots or observations

## 10. Version #1: Local file system

My Visitors

My Visitors

+

file:///home/codd/sou.edu/cs356-cloud-files/06\_aws\_restapi\_lambda\_cdk/frontend/src/index.html

...

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### Guestbook

Name:

Email:

Message:

### Entries

Branden codd <codd@sou.edu>  
 signed on 2021-02-17 03:22:13.956144+00:00  
 Hello Cloud Run!

---

Branden Codd <codd@sou.edu>  
 signed on 2021-02-11 04:23:30.992484+00:00  
 Hello Docker Datastore!

---

Branden Codd <coddb@sou.edu>  
signed on 2021-02-10 20:15:29.541181+00:00  
Hello Datastore

---

Branden <coddb@sou.edu>  
signed on 2021-02-26 00:30:23.243983+00:00  
Hello Cloud Functions from Python Requests!

---

Branden codd <coddb@sou.edu>  
signed on 2021-02-24 02:09:26.297899+00:00  
Hello Kubernetes!

---

Branden r codd <coddb@sou.edu>  
signed on 2021-02-11 04:45:26.345528+00:00  
Hello Compute Engine!

---

Branden Codd <coddb@sou.edu>  
signed on 2021-02-26 00:53:54.645211+00:00  
Hello Cloud Functions from SPA!

---

Branden <coddb@sou.edu>  
signed on 2021-02-25 22:02:47.679004+00:00  
Hello cloud functions

---

## 11. Version #2: Google Cloud Storage bucket

## Guestbook

Name:

Email:

Message:

## Entries

Brandon codd <codd@sou.edu>  
signed on 2021-02-17 03:22:13.956144+00:00  
Hello Cloud Run!

---

Brandon Codd <codd@sou.edu>  
signed on 2021-02-11 04:23:30.992484+00:00  
Hello Docker Datastore!

---

Brandon r Codd <codd@sou.edu>  
signed on 2021-02-16 05:49:01.866466+00:00  
Hello App Engine!

---

Brandon Codd <codd@sou.edu>  
signed on 2021-02-11 04:36:44.788618+00:00  
Hello Cloud Shell!

---

Brandon Codd <codd@sou.edu>  
signed on 2021-02-10 20:15:29.541181+00:00  
Hello Datastore

---

Brandon <codd@sou.edu>  
signed on 2021-02-26 00:30:23.243983+00:00  
Hello Cloud Functions from Python Requests!

---

signed on 2021-02-24 02:09:26.297899+00:00  
Hello Kubernetes!

---

Brandon r codd <codd@sou.edu>  
signed on 2021-02-11 04:45:26.345528+00:00  
Hello Compute Engine!

---

Brandon Codd <codd@sou.edu>  
signed on 2021-02-26 00:53:54.645211+00:00  
Hello Cloud Functions from SPA!

---

Brandon <codd@sou.edu>  
signed on 2021-02-25 22:02:47.679004+00:00  
Hello cloud functions

---

Brandon codd <codd@sou.edu>  
signed on 2021-02-26 00:59:17.447169+00:00  
Hello Cloud Functions from SPA in GCS!

---