

Week7

Lab7

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Terraform AWS Guestbook ([Link](#))

- ☐ Terraform
- ☐ Setup
- ☐ Initial configuration
- ☐ Launching configuration
 - ☐ Take a screenshot showing the completion of the command including its output

```
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-016dcdeb7fd4c6c3f]
```

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

Outputs:

```
ec2instance = "44.204.240.108"
[cloudshell-user@ip-10-0-173-128 tf]$ atouche
```

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



	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4 ...
<input type="checkbox"/>	-	i-07310e893f584eb42	Terminated	t2.micro	-	No alarms	us-east-1a	-	-
<input type="checkbox"/>	-	i-016dcdeb7fd4c6c3f	Running	t2.micro	Initializing	No alarms	us-east-1d	ec2-44-204-240-108.co...	44.204.240.108
<input type="checkbox"/>	-	i-0d9d4d4c4d4d4d4d4	Terminated	t2.micro	-	No alarms	us-east-1d	-	-

- ☐ Adding network access

☐ Adding ssh access

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

```
[cloudshell-user@ip-10-0-173-128 tf]$ ssh ubuntu@34.201.108.231
The authenticity of host '34.201.108.231 (34.201.108.231)' can't be established.
ECDSA key fingerprint is SHA256:k9Bx3JK912cz6TnhqagvjrdtznZaQseQIfUIILViNM.
ECDSA key fingerprint is MD5:16:fc:24:ec:5c:27:0b:1c:cd:54:78:55:ae:ee:8a:3f.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '34.201.108.231' (ECDSA) to the list of known hosts.
Welcome to Ubuntu 20.04.5 LTS (GNU/Linux 5.15.0-1022-aws x86_64)

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

System information as of Thu Nov 10 21:39:38 UTC 2022

System load:  0.83               Processes:            105
Usage of /:   19.7% of 7.57GB    Users logged in:     0
Memory usage: 22%               IPv4 address for eth0: 172.31.85.218
Swap usage:   0%

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

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-172-31-85-218:~$ atouche
```

☐ Adding the Guestbook application

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

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

Outputs:

ec2instance = "34.207.149.204"
[cloudshell-user@ip-10-0-173-128 tf]$ atouche
```

☐ View the Guestbook

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



Guestbook

Sign [here](#)

Entries

atouche <atouche@pdx.edu>
signed on 2022-11-10
Hello Terraform on AWS!

☐ Clean Up

Terraform GCP Guestbook ([Link](#))

- ☐ Terraform
- ☐ Setup
- ☐ Initial configuration
- ☐ Launching configuration
 - ☐ VM IP

cloud-Touche-atouche

Search compute engine

VM instances

CREATE INSTANCE

IMPORT VM

REFRESH

START / RESUME

INSTANCES

INSTANCE SCHEDULES

VM instances are highly configurable virtual machines for running workloads on Google infrastructure. [Learn more](#)

Filter

Enter property name or value

<input type="checkbox"/>	Status	Name ↑	Zone	Recommendations	In use by	Internal IP
<input type="checkbox"/>	✓	tf-lab-vm	us-west1-b			10.138.0.19 (nic0)

- ☐ Adding an external IP address
 - ☐ Applied plan

```
ip = "35.197.107.54"
atouche@cloudshell:~/tf (cloud-touche-atouche)
```

☐ VM's external IP

cloud-Touche-atouche

Search compute engine

VM instances

CREATE INSTANCEIMPORT VMREFRESHSTART / RESUMESTOPSTOP SUSPEND

INSTANCESINSTANCE SCHEDULES

VM instances are highly configurable virtual machines for running workloads on Google infrastructure. [Learn more](#)

Filter Enter property name or value

Status	Name	Zone	Recommendations	In use by	Internal IP	External IP
<input checked="" type="checkbox"/>	tf-lab-vm	us-west1-b			10.138.0.19 (nic0)	35.197.107.54 (nic0)

☐ Adding ssh access

☐ Successful connect

```
ip = "35.197.107.54"
atouche@cloudshell:~/tf (cloud-touche-atouche)$ ssh 35.197.107.54
Welcome to Ubuntu 20.04.5 LTS (GNU/Linux 5.15.0-1021-gcp x86_64)

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

☐ Adding the Guestbook

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

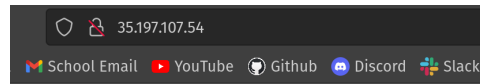
- Changing metadata resource for google_compute_instance, changing external IP to a static address. Adding an install script.

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

- The addition of the install script.

☐ View the Guestbook

☐ Guestbook



Guestbook

Sign [here](#)

Entries

atouche <atouche@pdx.edu>
signed on 2022-11-11
Hello Terraform on GCP!

☐ Clean Up

Kubernetes Guestbook ([Link](#))

- ☐ Kubernetes
- ☐ Setup
- ☐ Assigning privileges
- ☐ Create Kubernetes cluster
 - ☐ **What is the name of the Instance Template dynamically generated to create the two nodes (VMs)?**
 - ☐ gke-gusetbook-default-pool-32f75df2
 - ☐ **What is the name of the Instance Group dynamically generated that the two nodes belong to?**
 - ☐ gke-gusetbook-default-pool-32f75df2
 - ☐ **What are the names of the two nodes?**
 - gke-gusetbook-default-pool-32f75df2-krjn
 - gke-gusetbook-default-pool-32f75df2-z13w
- ☐ Prepare a container image
 - ☐ **Take a screenshot of the container image created**

cloud-Touche-atoche

← Images DELETE

gcp_gb

gcr.io > cloud-touche-atoche > gcp_gb

Filter Enter property name or value

<input type="checkbox"/>	Name	Tags	Virtual Size ?	Created	Uploaded ↓
<input type="checkbox"/>	87d5c8798b13	latest	1.1 GB	3 minutes ago	Just now

- ☐ kubernetes.yaml

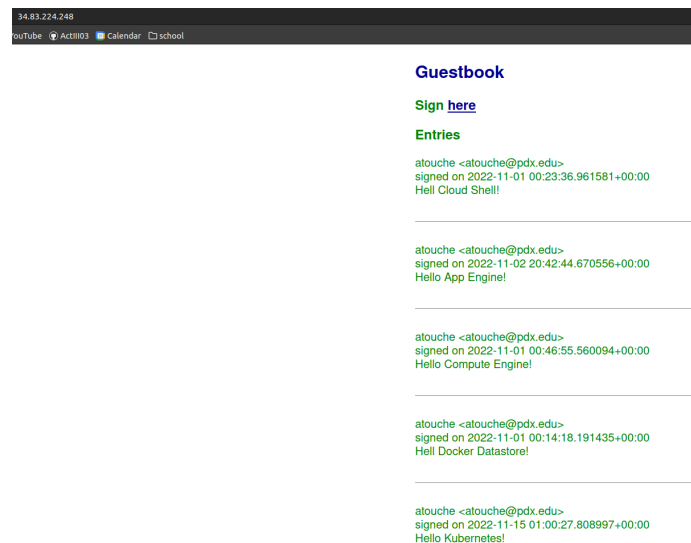
- ☐ Deploy the configuration
 - ☐ Take a screenshot of the output of the following command when all 3 replicas reach a "Running" state.

```
NAME                                READY   STATUS    RESTARTS   AGE
guestbook-replicas-mp97f           1/1     Running   0           83s
guestbook-replicas-q4h52           1/1     Running   0           83s
guestbook-replicas-zndxx           1/1     Running   0           83s
atouche@cloudshell:~/.../cs430-src/05_gcp_datastore (cloud-touche-atouche)$
```

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

```
atouche@cloudshell:~/.../cs430-src/05_gcp_datastore (cloud-touche-atouche)$ kubectl get services
NAME            TYPE          CLUSTER-IP   EXTERNAL-IP   PORT(S)          AGE
guestbook-lb    LoadBalancer 10.20.15.68   34.83.224.248 80:30758/TCP     2m24s
kubernetes      ClusterIP      10.20.0.1    <none>        443/TCP          39m
atouche@cloudshell:~/.../cs430-src/05_gcp_datastore (cloud-touche-atouche)$
```

- ☐ View the Guestbook
 - ☐ 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.

cloud-Touche-atoche

Search Kub

← Clusters

EDIT

DELETE

ADD NODE POOL

DEPLOY

CONNECT

DUPLICATE

✓ guestbook

DETAILS

NODES

STORAGE

OBSERVABILITY

LOGS

Cluster basics

Name	guestbook	🔒
Location type	Zonal	🔒
Control plane zone	us-west1-b	🔒
Default node zones	us-west1-b	✎
Release channel	Regular channel	✎ UPGRADE AVAILABLE
Version	1.23.8-gke.1900	
Total size	2	①
Endpoint	34.168.202.69	🔒

Show cluster certificate

- ☐ Take a screenshot of the load balancer and its details

cloud-Touche-atoche

← Service details

REFRESH

EDIT

DELETE

KUBECTL

✓ guestbook-lb

OVERVIEW

DETAILS

EVENTS

LOGS

YAML

Cluster

guestbook

Namespace

default

Created

Nov 14, 2022, 4:56:40 PM

Labels

app: guestbook tier: frontend

Annotations

c1oud.google.com/neg: {"ingress":true}

Label selector

app = guestbook tier = frontend

Pods

3 current / 3 desired

Type

LoadBalancer

External endpoints

34.83.224.248:80

Load Balancer

Cluster IP	10.20.15.68
Load balancer IP	34.83.224.248
Load balancer	a9a2537b9fb5e4306ac4482998ab1591

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

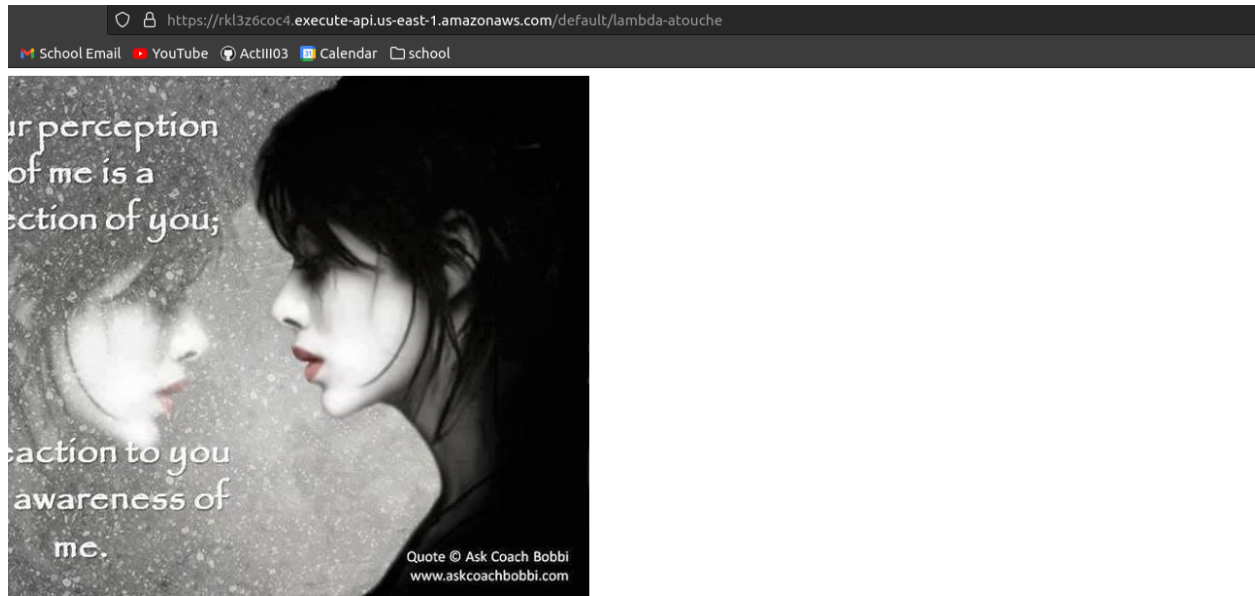
cloud-Touche-atoche								
IP addresses								
RESERVE EXTERNAL STATIC ADDRESS REFRESH RELEASE STATIC ADDRESS								
ALL INTERNAL IP ADDRESSES EXTERNAL IP ADDRESSES IPV4 ADDRESSES IPV6 ADDRESSES								
Filter Enter property name or value								
<input type="checkbox"/>	Name	IP address	Access type ↑	Region	Type	Version	In use by	Subnetwork
<input type="checkbox"/>	–	34.82.83.191	External	us-west1	Ephemeral	IPv4	VM instance gke-guestbook-default-pool-32f74df2-krgrn (Zone us-west1-b)	default
<input type="checkbox"/>	–	34.83.224.248	External	us-west1	Ephemeral	IPv4	Forwarding rule a9a2537b9fb5e4306ac4482998ab1591	
<input type="checkbox"/>	–	35.230.48.255	External	us-west1	Ephemeral	IPv4	VM instance gke-guestbook-default-pool-32f74df2-z13w (Zone us-west1-b)	default
<input type="checkbox"/>	gke-guestbook-c9406b46-12f65700-pe	10.138.0.21	Internal	us-west1	Static	IPv4	Forwarding rule gke-guestbook-c9406b46-12f65700-pe	default
<input type="checkbox"/>	–	10.138.0.22	Internal	us-west1	Ephemeral	IPv4	VM instance gke-guestbook-default-pool-32f74df2-krgrn (Zone us-west1-b)	default
<input type="checkbox"/>	–	10.138.0.23	Internal	us-west1	Ephemeral	IPv4	VM instance gke-guestbook-default-pool-32f74df2-z13w (Zone us-west1-b)	default

- 34.83.224.248 = LoadBalancer
- 34.82.83.191/35.230.48.255 = replicas of nodes

- ☐ Clean Up

APIs ([Link](#))

- ☐ MoTD Function
- ☐ API integration
- ☐ Lambda code
- ☐ Test code
- ☐ Take a screenshot of the resulting page including the URL bar.



- ☐ Click "Reload" in the browser and take another screenshot showing the

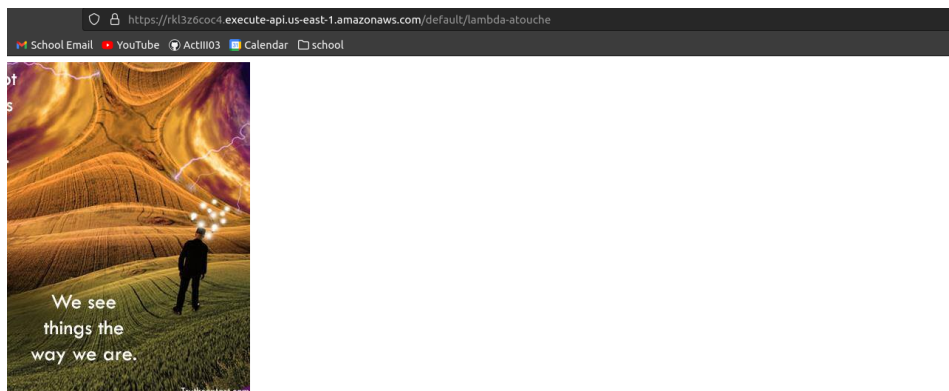


image has changed:

- ☐ Clean up
- ☐ gettime API
- ☐ Implement code
- ☐ Test code
 - ☐ curl

```
at03@at03-desktop: ~/dev_folder/school/cs430P/lab/lab7$ curl https://o21upuoz16.execute-api.us-east-1.amazonaws.com/default/gettime-atouc
he
{"currentTime": "2022-11-15 02:24:44.974542"}at03@at03-desktop:~/dev_folder/school/cs430P/lab/lab7$ atouche
```

- ☐ Clean up

APIs (Slack, Knowledge Graph) ([Link](#))

☐ Slack and Knowledge Graph integration

☐ Code

☐ **Could we have used the API Discovery package to interact with the Vision API?**

- Yes

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

- No

☐ Code

☐ **Visit the file and perform the following for your lab notebook:**

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

- `main.py:86`

- `query= request.form['text']`

- **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?**

- `main.py:87 # executes`

- `main.py:88 # Formats slack message`

☐ **Visit the file and answer the following questions:**

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

- Is a dictionary like:

- `name: "`

- `description: "`

- `detailedDescription: "`

- `...`

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

- `response_type`

- `text`

- `attachments`

☐ Knowledge graph setup

☐ `AlzaSyA3skI5HIIG_bFBgMoF3VdpLZqOHcOoWwE`

☐ Create a Slack workspace

☐ **What would be the difference between an adversary finding out**

YOUR_SLACK_SIGNING_SECRET versus finding out YOUR_KG_API_KEY?

- Gain access to 1 API via **YOUR_SLACK_SIGNING_SECRET** vs many w/ **YOUR_KG_API_KEY**.

- ☐ Configure and Deploy
- ☐ Create Slack command
- ☐ Test the command
- ☐ **Test**



atouche 8:05 PM
/kg portlandia



cs430bot APP 8:05 PM
Query: portlandia

Portland: City in Oregon

Portland is a port city in the Pacific Northwest and the largest city in the U.S. state of Oregon. Situated at the confluence of the Willamette and Columbia rivers, Portland is the county seat of Multnomah County, the largest county in Oregon by population. (11 kB) ▾



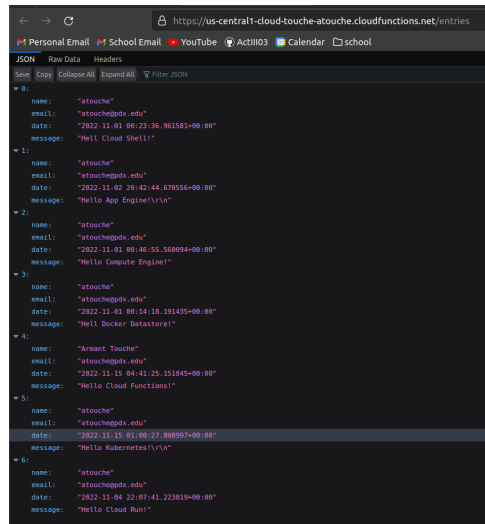
Lambda, API Gateway Guestbook ([Link](#))

- ☐ Overview
- ☐ Obtain AWS account ID
- ☐ REST API Code
 - ☐ **What might go wrong when we call scan? Think about the way DynamoDB works, and look at the [scan documentation](#) for a hint. What could be done to address this problem?**
 - If the total number of scanned items exceeds the maximum dataset size limit of 1 MB, the scan stops and results are returned to the user as a LastEvaluatedKey value to continue the scan in a subsequent operation. To address it, limit the number of scans to not exceed.
- ☐ Deploy the Lambda for viewing entries
 - ☐ run

```
aws lambda create-function --function-name ${odin_id}-gb-lambda \
  --zip-file fileb://./function.zip \
  --handler get_entries.handler \
  --runtime python3.7 \
  --environment Variables={TABLE='guestbook'} \
  --role 695141229392
```
- ☐ Create API in API Gateway
- ☐ Enable API to invoke Lambda function
- ☐ API endpoint for viewing entries (1)
- ☐ API endpoint for viewing entries (2)
- ☐ CORS setup for viewing entries
- ☐ Deploy API to production
- ☐ API endpoint for signing (1)
- ☐ API endpoint for signing (2)
- ☐ CORS setup for signing
- ☐ Frontend Code
- ☐ Configure and Deploy the Frontend
- ☐ Clean up

Cloud Functions API Guestbook ([Link](#))

- ☐ Cloud Functions
- ☐ REST API (GET)
- ☐ REST API (POST)
- ☐ Deploy the API
- ☐ Test the API via Cloud Functions (POST)
 - ☐ entries



- ☐ Test the API via Python Requests (GET)
 - ☐ loop

```
>>> step_6()
Name: atouche
Email: atouche@pdx.edu
Signed on: 2022-11-01 00:23:36.961581+00:00
Message: Hell Cloud Shell!
Name: atouche
Email: atouche@pdx.edu
Signed on: 2022-11-02 20:42:44.670556+00:00
Message: Hello App Engine!

Name: atouche
Email: atouche@pdx.edu
Signed on: 2022-11-01 00:46:55.560094+00:00
Message: Hello Compute Engine!
Name: atouche
Email: atouche@pdx.edu
Signed on: 2022-11-01 00:14:18.191435+00:00
Message: Hell Docker Datastore!
Name: Armant Touche
Email: atouche@pdx.edu
Signed on: 2022-11-15 04:41:25.151845+00:00
Message: Hello Cloud Functions!
Name: atouche
Email: atouche@pdx.edu
Signed on: 2022-11-15 01:00:27.808997+00:00
Message: Hello Kubernetes!

Name: atouche
Email: atouche@pdx.edu
Signed on: 2022-11-04 22:07:41.223819+00:00
Message: Hello Cloud Run!
>>>
```

☐ Test the API via Python Requests (POST)

```
>>> resp.status_code
200
>>> resp.headers
{'access-control-allow-origin': '*', 'content-type': 'application/json', 'function-execution-id': 'nqp58wvz5wzh', 'X-Cloud-Trace-Context': '2dd89c528935f
a=2592000,h3-29=":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"}
>>> resp.json()[0]
{'name': 'atouche', 'email': 'atouche@pdx.edu', 'date': '2022-11-15 05:07:41.505450+00:00', 'message': 'Hello Cloud Functions from Python Requests!'}
```

☐ Client-side Guestbook application

☐ Guestbook.js

☐ Version #1: Local file system

☐ local

signed on 2022-11-15 05:11:06.821900+00:00
Hello Cloud Functions from Python Requests take2!

atouche <atouche@pdx.edu>
signed on 2022-11-15 05:23:14.676913+00:00
Hello Cloud Functions from SPA!

Debugger Network Style Editor Performance Memory Storage Accessibility Application

☐ Version #2: Google Cloud Storage bucket

- ☐ Could not get past this step because the storage bucket would not invalidate guestbook.js w/ the corrected bse url. For some reason, the authenticated URL had the correct guestbook.js script.

☐ Clean up