

# Max Huecksteadt

## CS 530

### Lab Week 7

1.

```
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:
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: Still creating... [40s elapsed]
aws_instance.guestbook: Creation complete after 42s [id=i-0bd27b1d59fbd5dcf]

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

Outputs:
ec2instance = "54.145.40.23"
```

2.

Instance summary for i-0bd27b1d59fbd5dcf

Updated less than a minute ago

Connect

Instance state

Actions

Instance ID i-0bd27b1d59fbd5dcf	Public IPv4 address 54.145.40.23   <a href="#">open address</a>	Private IPv4 addresses 172.31.19.18
IPv6 address -	Instance state Running	Public IPv4 DNS ec2-54-145-40-23.compute-1.amazonaws.com   <a href="#">open address</a>
Hostname type IP name: ip-172-31-19-18.ec2.internal	Private IP DNS name (IPv4 only) ip-172-31-19-18.ec2.internal	
Answer private resource DNS name -	Instance type t2.micro	Elastic IP addresses -
Auto-assigned IP address 54.145.40.23 [Public IP]	VPC ID vpc-0f5b7b0e60da2a16f	AWS Compute Optimizer finding Opt-in to AWS Compute Optimizer for recommendations.   <a href="#">Learn more</a>
IAM Role -	Subnet ID subnet-0fc5aafef3d82145	Auto Scaling Group name -

3.

```

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 Sun Nov 13 20:27:52 UTC 2022

System load:  0.07               Processes:    102
Usage of /:   19.7% of 7.57GB    Users logged in: 0
Memory usage: 22%               IPv4 address for eth0: 172.31.93.64
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-172-31-93-64:~$

```

4.

```

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-08677424040c077c8]
aws_instance.guestbook: Creating...
aws_instance.guestbook: Still creating... [10s elapsed]
aws_instance.guestbook: Creation complete after 12s [id=i-0f8af9e55e8e4f1a3]

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

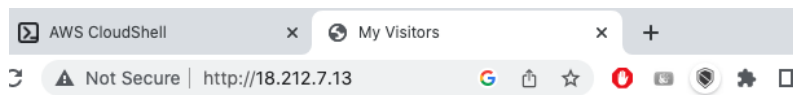
Outputs:

ec2instance = "18.233.225.196"

```

\*note URL is different as I ran into errors and redid the above steps!

5.



## Guestbook

[Sign here](#)

### Entries

Max <mhueck2@pdx.ed>  
signed on 2022-11-13  
Hello Terraform on AWS!

---

6.

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	Internal IP	External IP	Network	Connect
<input checked="" type="checkbox"/>	✓	<a href="#">tf-lab-vm</a>	us-west1-b	10.138.0.14 ( <a href="#">nic0</a> )		<a href="#">default</a>	SSH ▾

7.

```
google_compute_address.static: Creating...
google_compute_address.static: Still creating... [10s elapsed]
google_compute_address.static: Creation complete after 10s [id=projects/cloud-huecksteadt-mhueck2/regions/us-west1/addresses/ipv4-address]
google_compute_instance.default: Modifying... [id=projects/cloud-huecksteadt-mhueck2/zones/us-west1-b/instances/tf-lab-vm]
google_compute_instance.default: Still modifying... [id=projects/cloud-huecksteadt-mhueck2/zones/us-west1-b/instances/tf-lab-vm, 10s elapsed]
google_compute_instance.default: Modifications complete after 11s [id=projects/cloud-huecksteadt-mhueck2/zones/us-west1-b/instances/tf-lab-vm]

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

Outputs:

ip = "34.168.194.239"
```

8.

Filter Enter property name or value

Name ↑	Zone	Internal IP	External IP	Network	Connect
<a href="#">tf-lab-vm</a>	us-west1-b	10.138.0.14 ( <a href="#">nic0</a> )	34.168.194.239 ( <a href="#">nic0</a> )	<a href="#">default</a>	SSH ▾

9.

```
mhueck2@cloudshell:~/tf (cloud-huecksteadt-mhueck2) $ ssh 34.168.194.239
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

System information as of Sun Nov 13 23:51:53 UTC 2022

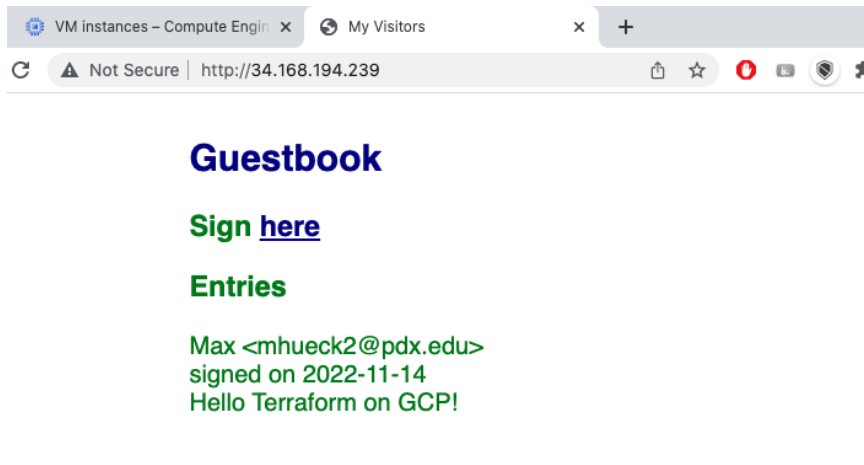
System load:  0.0               Processes:    91
Usage of /:   18.8% of 9.51GB   Users logged in: 0
Memory usage: 34%              IPv4 address for ens4: 10.138.0.14
Swap usage:   0%

0 updates can be applied immediately.
```

10.

- What resources are being added, changed, or destroyed?
  - The google cloud default settings are being changed and destroyed, and the app settings and those from install.sh are being added.
- What part of the configuration forces a replacement to occur?
  - The install.sh causes the replacement to occur

11.



12.

- What is the name of the Instance Template dynamically generated to create the two nodes (VMs)?
  - [gke-guestbook-default-pool-ed6e6bf7](#)
- What is the name of the Instance Group dynamically generated that the two nodes belong to?
  - [gke-guestbook-default-pool-ed6e6bf7-grp](#)
- What are the names of the two nodes?
  - [Gke-guestbook-default-pool-ed6e6bf7-567r](#), [gke-guestbook-default-pool-ed6e6bf7-k14j](#)

13.

gcp\_gb

gcr.io > cloud-huecksteadt-mhueck2 > gcp\_gb

Filter Enter property name or value

<input type="checkbox"/>	Name	Tags	Virtual Size ?	Created	Uploaded ↓	
<input type="checkbox"/>	<a href="#">3b5d7a060079</a>	latest	1.4 GB	Just now	Just now	⋮

14.

```
mhueck2@cloudshell:~/cs430-src/05_gcp_datastore (cloud-huecksteadt-mhueck2)$ kubectl get pods
NAME                                READY   STATUS    RESTARTS   AGE
guestbook-replicas-8djsl            1/1     Running   0           2m22s
guestbook-replicas-8j5nt            1/1     Running   0           2m22s
guestbook-replicas-d97qt            1/1     Running   0           2m22s
```

15.

```
mhueck2@cloudshell:~/cs430-src/05_gcp_datastore (cloud-huecksteadt-mhueck2)$ kubectl get services
NAME            TYPE          CLUSTER-IP   EXTERNAL-IP   PORT(S)          AGE
guestbook-lb    LoadBalancer 10.20.0.201   34.127.25.249 80:30825/TCP     2m49s
kubernetes      ClusterIP      10.20.0.1    <none>        443/TCP          28m
```

16.

Not Secure | http://34.127.25.249

## Guestbook

[Sign here](#)

### Entries

Max <mhueck2@pdx.edu>  
signed on 2022-11-01 02:04:35.549276+00:00  
Hello Cloud Shell!

---

Max <mhueck2@pdx.edu>  
signed on 2022-10-31 18:40:42.558900+00:00  
Hello Datastore!

---

Max <mhueck2@pdx.edu>  
signed on 2022-11-14 01:42:24.839314+00:00  
Hello Kubernetes!

---

17.

### Managed pods

Name	Status	Restarts	Created on ↑
<a href="#">guestbook-replicas-d97qt</a>	✓ Running	0	Nov 13, 2022, 5:38:28 PM
<a href="#">guestbook-replicas-8j5nt</a>	✓ Running	0	Nov 13, 2022, 5:38:28 PM
<a href="#">guestbook-replicas-8djsl</a>	✓ Running	0	Nov 13, 2022, 5:38:28 PM

### Exposing services ?

Name ↑	Type	Endpoints
<a href="#">guestbook-lb</a>	Load balancer	<a href="#">34.127.25.249:80</a>

18.

LOAD BALANCERS					
BACKENDS					
FRONTENDS					
Filter Enter property name or value					
<input type="checkbox"/>	Name	Load balancer type ↑	Protocols	Region	Backends
<input type="checkbox"/>	<a href="#">a8ec06b2a401148119f8d8445d2cc6f0</a>	Network (target pool-based)	TCP	us-west1	✓ 1 target pool (2 instances)

19.

IP address	Access type	Region	Type ↓	Version	In use by	Subnetwork	VPC Network
34.127.25.249	External	us-west1	Ephemeral	IPv4	Forwarding rule <a href="#">a8ec06b2a401148119f8d8445d2cc6f0</a>		
34.168.194.239	External	us-west1	Ephemeral	IPv4	VM instance <a href="#">gke-guestbook-default-pool-ed6e6bf7-567r</a> (Zone us-west1-b)	<a href="#">default</a>	<a href="#">default</a>
35.197.43.139	External	us-west1	Ephemeral	IPv4	VM instance <a href="#">gke-guestbook-default-pool-ed6e6bf7-k14j</a> (Zone us-west1-b)	<a href="#">default</a>	<a href="#">default</a>

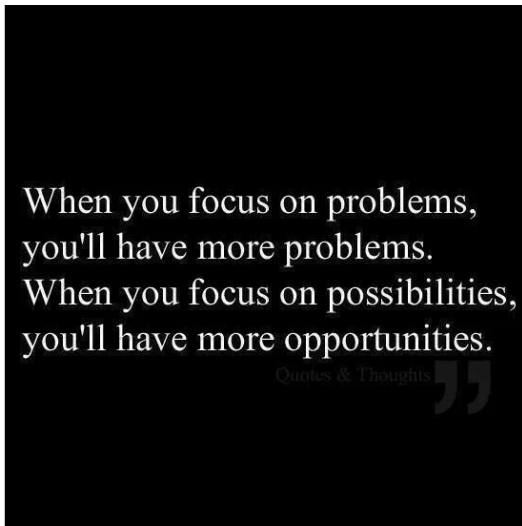
20.

https://3947z5cxv7.execute-api.us-east-1.amazonaws.com/default/lambda-mhueck2

When  
someone does  
something  
wrong, don't  
forget all  
the things they  
did right.

21.

← → ↻ <https://3947z5cxv7.execute-api.us-east-1.amazonaws.com/default/lambda-mhueck2>



22.

```
mhueck2@mhueck2-VirtualBox:~$ curl https://tqbcclpmb8.execute-api.us-east-1.amazonaws.com/default/gettime-mhueck2
mhueck2@mhueck2-VirtualBox:~$
```

23.

- Could we have used the API Discovery package to interact with the Vision API?
  - Yes, Google implements the discovery package in the Vision API so it should be possible.
- Does Google provide a Python package specifically for accessing the Knowledge Graph API?
  - Yes, using kgsearch

24.

- 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?
  - `kg_search_response = make_search_request(request.form['text'])`
  - `return jsonify(kg_search_response)`

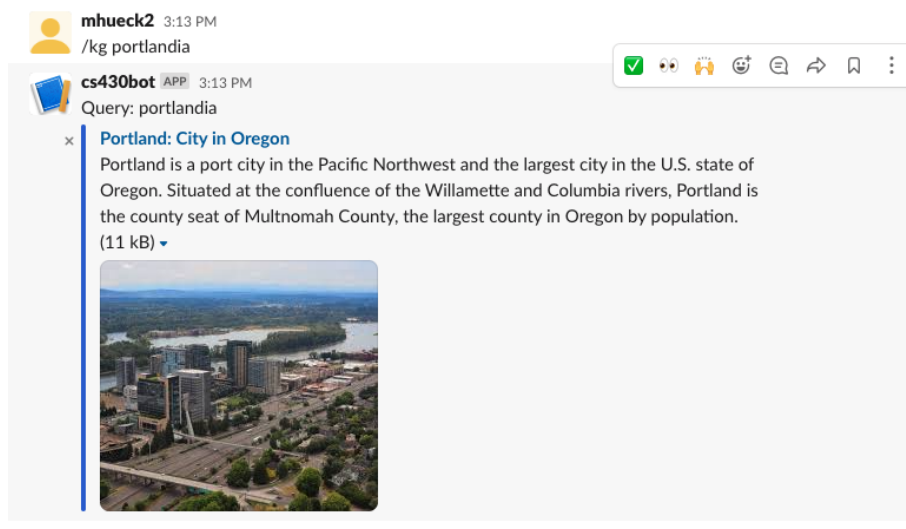
25.

- 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?
  - Response type, text, attachments

26.

- What would be the difference between an adversary finding out `YOUR_SLACK_SIGNING_SECRET` versus finding out `YOUR_KG_API_KEY`?
  - The adversary would be able to pretend to be the slack app if it got the signing secret, and would be able to make calls to slack and KG with the API key

27.



28.

- 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 dataset size is too big, scan won't be able to return everything, which would mean the client only gets part of the table



29. For some reason, the preview function in Cloud9 does not show the previous entries:

## Guestbook

Name:

Email:

Message:

## Entries

30.

Request: /entry

Status: 200

Latency: 368 ms

Response Body

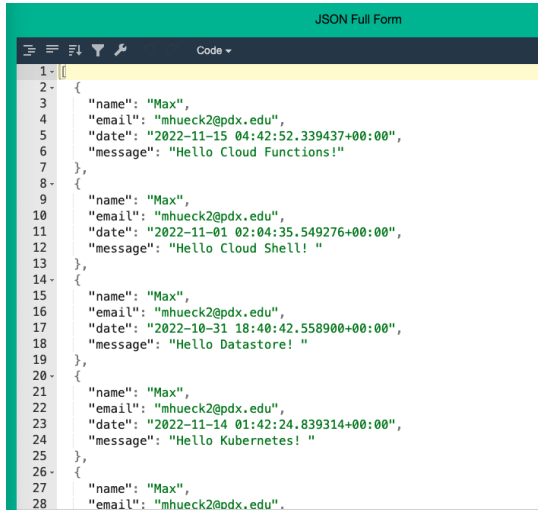
```
[{"message": "Hello DynamoDB! ", "date": "2022-10-31 17:03:02.810286", "email": "mhueck2@pdx.edu", "name": "Max"}, {"message": "Hello Docker DynamoDB! ", "date": "2022-11-01 00:14:36.531207", "email": "mhueck2@pdx.edu", "name": "Max"}, {"message": "Hello Cloud9! ", "date": "2022-11-01 00:37:18.256932", "email": "mhueck2@pdx.edu", "name": "Max"}, {"message": "Hello EC2! ", "date": "2022-11-01 01:11:28.984264", "email": "mhueck2@pdx.edu", "name": "Max"}, {"message": "Hello Elastic Beanstalk! ", "date": "2022-11-07 21:05:09.176866", "email": "mhueck2@pdx.edu", "name": "Max"}, {"message": "Hello API Gateway", "date": "2022-11-15 03:55:00.722855", "email": "mhueck2@pdx.edu", "name": "Max"}]
```

31. I am getting an error at: <http://mhueck2-frontend.s3-website-us-east-1.amazonaws.com/>

## 403 Forbidden

- Code: AccessDenied
- Message: Access Denied
- RequestId: 8FXGCGCY1BRDR128
- HostId: kKNnW7GPT5e6UMi9xaZpxwvc5E1csxwF3BKPsUxoXgsrTWY5HDAqXozQICuvrTMrI+PDGoOxJg=

32.



```
1- [
2- {
3-   "name": "Max",
4-   "email": "mhueck2@pdx.edu",
5-   "date": "2022-11-15 04:42:52.339437+00:00",
6-   "message": "Hello Cloud Functions!"
7- },
8- {
9-   "name": "Max",
10-  "email": "mhueck2@pdx.edu",
11-  "date": "2022-11-01 02:04:35.549276+00:00",
12-  "message": "Hello Cloud Shell! "
13- },
14- {
15-   "name": "Max",
16-   "email": "mhueck2@pdx.edu",
17-   "date": "2022-10-31 18:40:42.558900+00:00",
18-   "message": "Hello Datastore! "
19- },
20- {
21-   "name": "Max",
22-   "email": "mhueck2@pdx.edu",
23-   "date": "2022-11-14 01:42:24.839314+00:00",
24-   "message": "Hello Kubernetes! "
25- },
26- {
27-   "name": "Max",
28-   "email": "mhueck2@pdx.edu",
```

33.

```
>>> print(resp.status_code, resp.headers, resp.text)
200 {'access-control-allow-origin': '*', 'content-type': 'application/json', 'function-execution-id': 'vwuof0y7936', 'X-Cloud-Trace-Context': 'bcbbd83437204da065ccca71cf9e7271;o=1', 'Date': 'Tue, 15 Nov 2022 05:08:39 GMT', 'Server': 'Google Frontend', 'Content-Length': '1243', 'Alt-Svc': 'h3=;443'; ma=2592000, h3-29=;443'; ma=2592000, h3-0050=;443'; ma=2592000, h3-0046=;443'; ma=2592000, h3-0043=;443'; ma=2592000, quic=;443'; ma=2592000, v=46,43'} [{"name": "Max", "email": "mhueck2@pdx.edu", "date": "2022-11-15 04:42:52.339437+00:00", "message": "Hello Cloud Functions!"}, {"name": "Max", "email": "mhueck2@pdx.edu", "date": "2022-11-15 05:08:38.847536+00:00", "message": "Hello from python interp!"}, {"name": "Max", "email": "mhueck2@pdx.edu", "date": "2022-11-01 02:04:35.549276+00:00", "message": "Hello Cloud Shell! "}, {"name": "Max", "email": "mhueck2@pdx.edu", "date": "2022-10-31 18:40:42.558900+00:00", "message": "Hello Datastore! "}, {"name": "Max", "email": "mhueck2@pdx.edu", "date": "2022-11-14 01:42:24.839314+00:00", "message": "Hello Kubernetes! "}, {"name": "Max", "email": "mhueck2@pdx.edu", "date": "2022-11-08 01:59:38.667331+00:00", "message": "Hello Cloud Run! "}, {"name": "Max", "email": "mhueck2@pdx.edu", "date": "2022-11-01 01:54:09.868510+00:00", "message": "Hello Docker Datastore! "}, {"name": "Max", "email": "mhueck2@pdx.edu", "date": "2022-11-15 04:43:11.325592+00:00", "message": "Hello Cloud Functions!"}, {"name": "Max", "email": "mhueck2@pdx.edu", "date": "2022-11-07 21:49:28.178984+00:00", "message": "Hello App Engine! "}, {"name": "Max", "email": "mhueck2@pdx.edu", "date": "2022-11-01 02:14:28.673399+00:00", "message": "Hello Compute Engine! "}]
>>>
```

34.

file:///home/mhueck2/cloud-Huecksteadt-mhueck2/cs430-src/06\_gcp\_rest ☆

Max <mhueck2@pdx.edu>  
signed on 2022-11-15 05:08:38.847536+00:00  
Hello from python interp

---

Max <mhueck2@pdx.edu>  
signed on 2022-11-01 02:04:35.549276+00:00  
Hello Cloud Shell!

---

Max <mhueck2@pdx.edu>  
signed on 2022-10-31 18:40:42.558900+00:00  
Hello Datastore!

---

Max <Huecksteadt>  
signed on 2022-11-15 05:15:55.167059+00:00  
Hello Cloud Functions from SPA!

---

35.

https://storage.googleapis.com/restapi-mhueck2/index.html ☆

Max <mhueck2@pdx.edu>  
signed on 2022-11-08 01:59:38.667331+00:00  
Hello Cloud Run!

---

Max <mhueck2@pdx.edu>  
signed on 2022-11-01 01:54:09.868510+00:00  
Hello Docker Datastore!

---

Max <mhueck2@pdx.edu>  
signed on 2022-11-15 04:43:11.325592+00:00  
Hello Cloud Functions!

---

Max <mhueck2@pdx.edu>  
signed on 2022-11-07 21:49:28.178984+00:00  
Hello App Engine!

---

Max <mhueck2@pdx.edu>  
signed on 2022-11-01 02:14:28.673399+00:00  
Hello Compute Engine!

---

Max <mhueck2@pdx.edu>  
signed on 2022-11-15 05:23:29.194200+00:00  
Hello Cloud Functions from SPA in GCS!

---