CS356 -lab07:1g - Branden-Codd, 940428984

1. Kubernetes

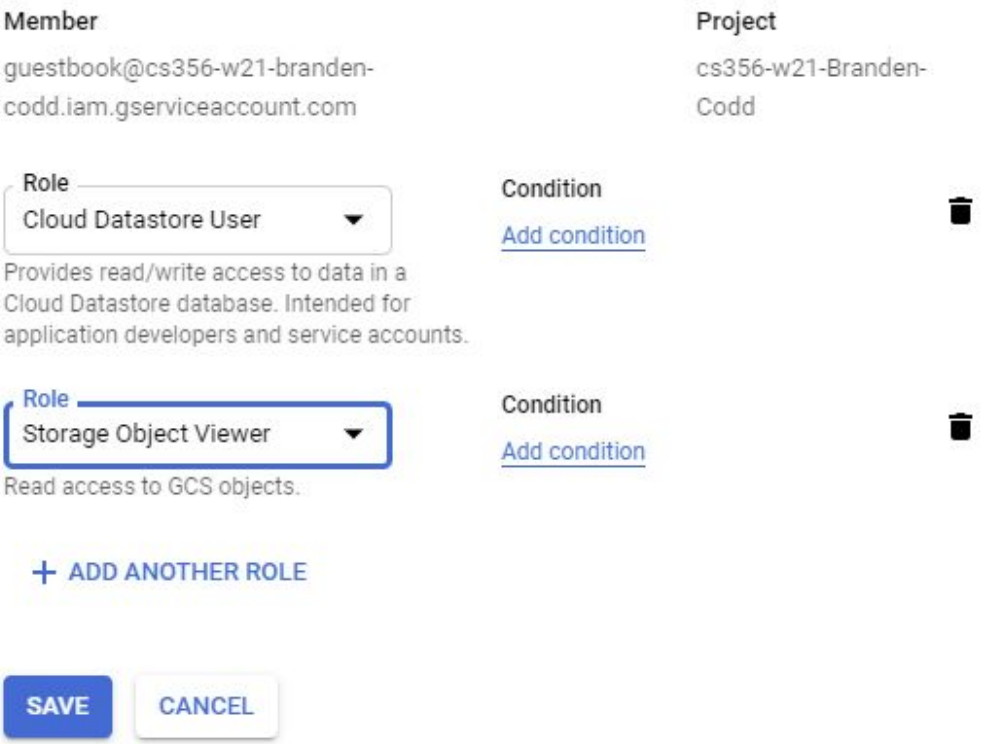
- No screenshots or observations

2. Setup

```
coddb@cloudshell:~ (cs356-w21-branden-codd)$ gcloud config set compute/zone us-west1-b
Updated property [compute/zone].
coddb@cloudshell:~ (cs356-w21-branden-codd)$ gcloud config list
[component_manager]
disable_update_check = True
[compute]
gce_metadata_read_timeout_sec = 30
zone = us-west1-b
[core]
account = coddb@sou.edu
disable_usage_reporting = True
project = cs356-w21-branden-codd
[metrics]
environment = devshell

Your active configuration is: [cloudshell-19484]
coddb@cloudshell:~ (cs356-w21-branden-codd)$
```

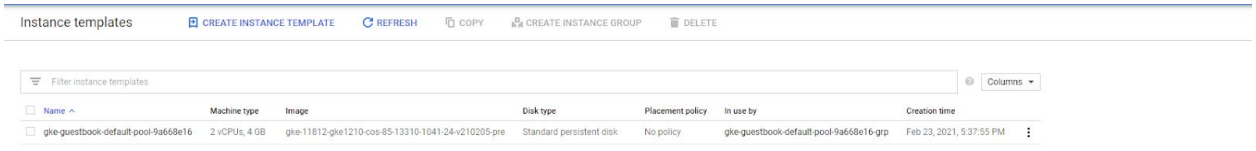
3. Assigning privileges



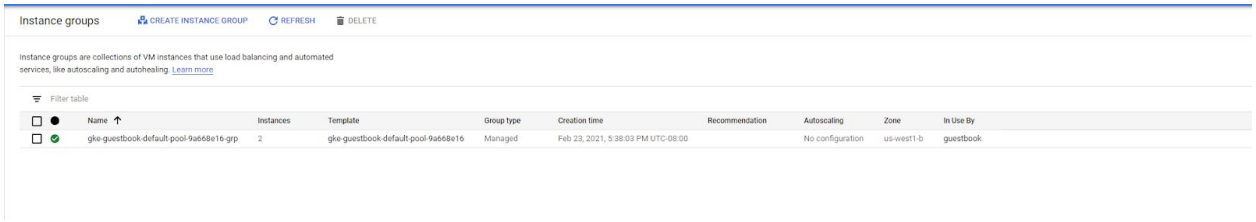
4. Create Kubernetes cluster

Go to Compute Engine and navigate around to answer the following questions in your lab notebook:

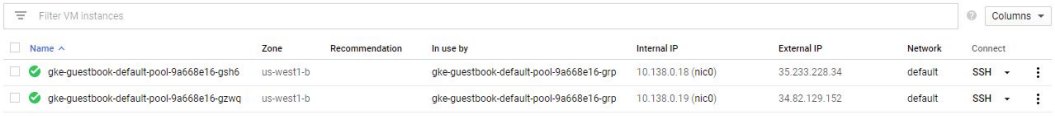
- What is the name of the Instance Template dynamically generated to create the two nodes (VMs)?



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



- What are the names of the two nodes?



5. Prepare a container image

- No screenshots or observations

6. Kubernetes.yaml

- Edit the file to fill in YOUR_PROJECT_ID with yours. Also, this is likely all lowercase, even if you have capital letters when viewing the project id in the console.

```
      labels:
        app: guestbook
        tier: frontend
    spec:
      containers:
      - name: guestbook-app
        image: gcr.io/cs356-w21-branden-codd/gcp_gb
        env:
        - name: PROCESSES
          value: guestbook
        - name: PORT
          value: "8000"
        ports:
        - containerPort: 8000
---
apiVersion: v1
```

7. Deploy the configuration

- Show a screenshot of the output of the following command when all 3 replicas reach a "Running" state. This may take a few minutes.
- kubectl get pods

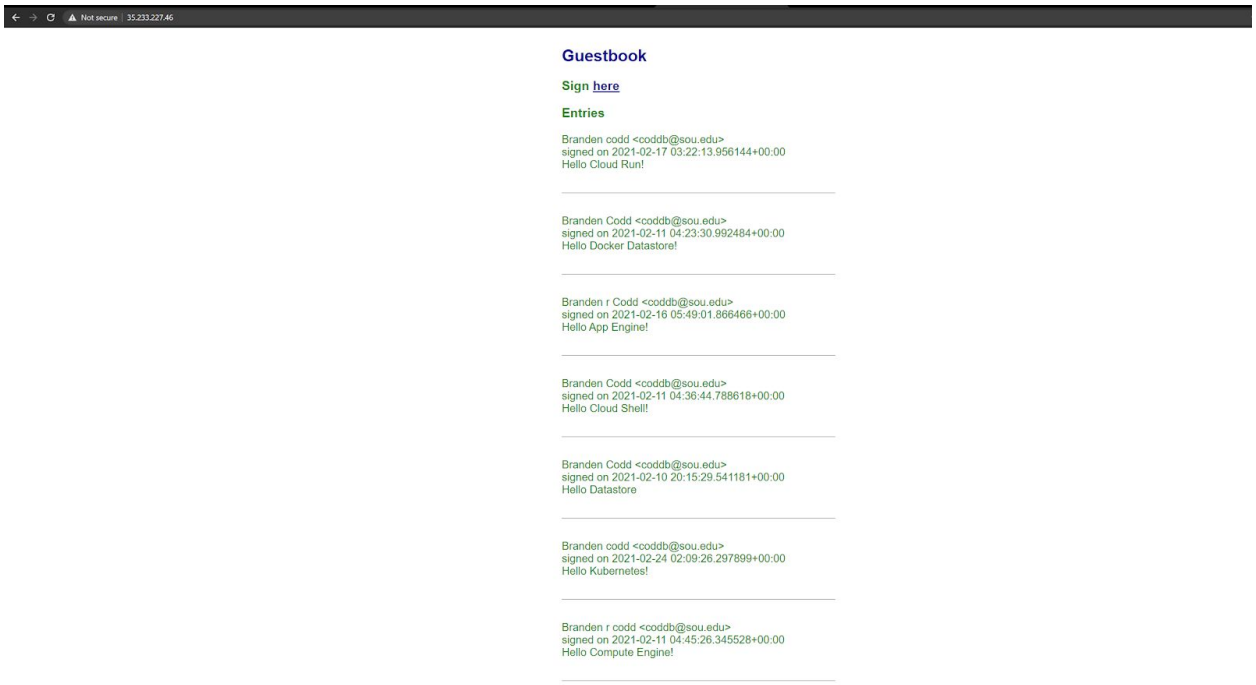
```
coddb@cloudshell:~/cs356-cloud-files/05_gcp_datastore (cs356-w21-branden-codd)$ kubectl get pods
NAME                          READY   STATUS    RESTARTS   AGE
guestbook-replicas-cd5pz      1/1     Running   0          98s
guestbook-replicas-wkrl7      1/1     Running   0          98s
guestbook-replicas-z9zbp      1/1     Running   0          98s
coddb@cloudshell:~/cs356-cloud-files/05_gcp_datastore (cs356-w21-branden-codd)$
```

- Show a screenshot of listing services with LoadBalancer indicating an external IP address that is ready for access.
- kubectl get services

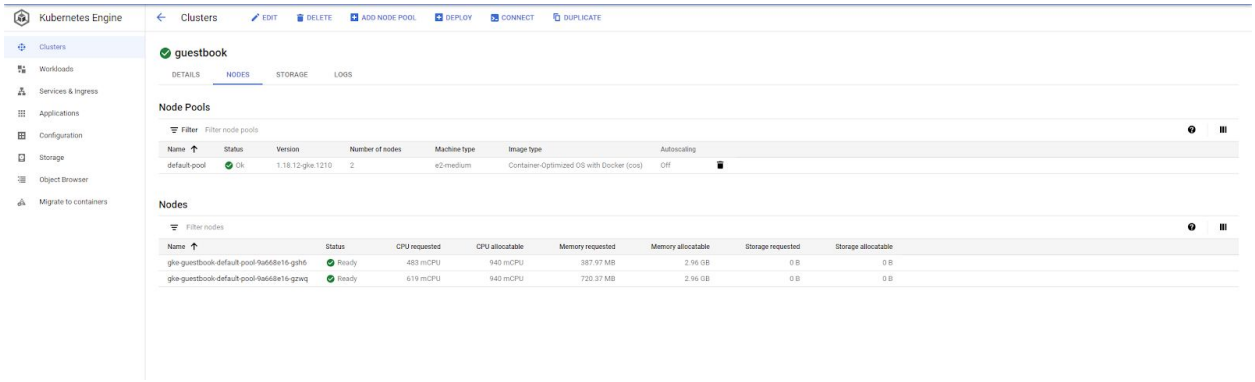
```
coddb@cloudshell:~/cs356-cloud-files/05_gcp_datastore (cs356-w21-branden-codd)$ kubectl get services
NAME           TYPE           CLUSTER-IP     EXTERNAL-IP     PORT(S)        AGE
guestbook-lb   LoadBalancer   10.3.250.255   35.233.227.46   80:31499/TCP   2m7s
kubernetes     ClusterIP      10.3.240.1     <none>          443/TCP        28m
coddb@cloudshell:~/cs356-cloud-files/05_gcp_datastore (cs356-w21-branden-codd)$
```

8. View the Guestbook

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



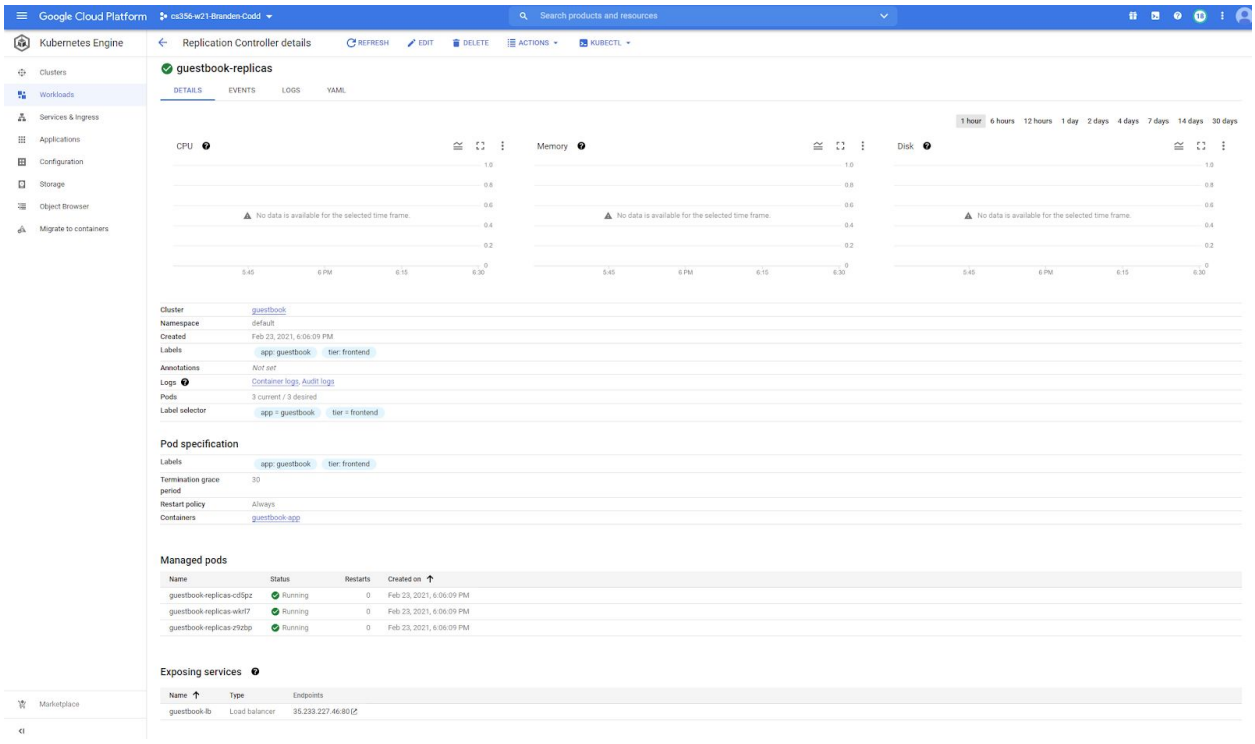
- Visit Kubernetes engine via the web console and view the cluster nodes, the workload of pod replicas placed on them, and the service exported

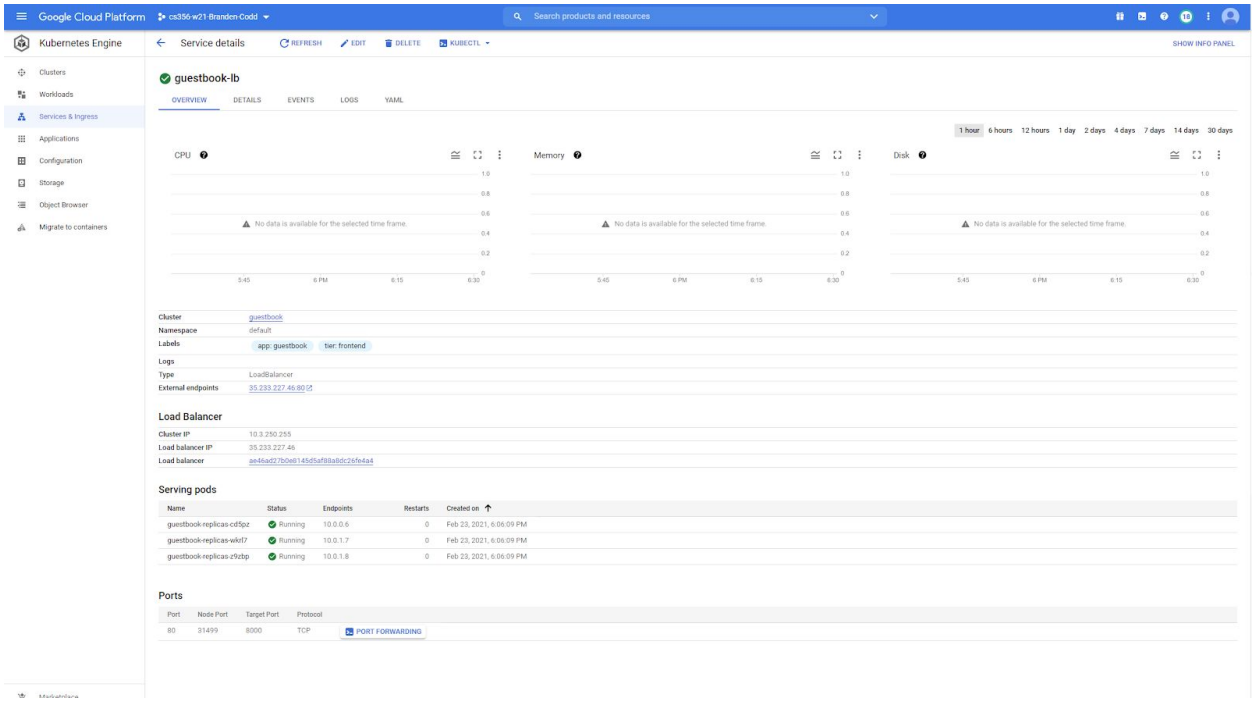


Pods

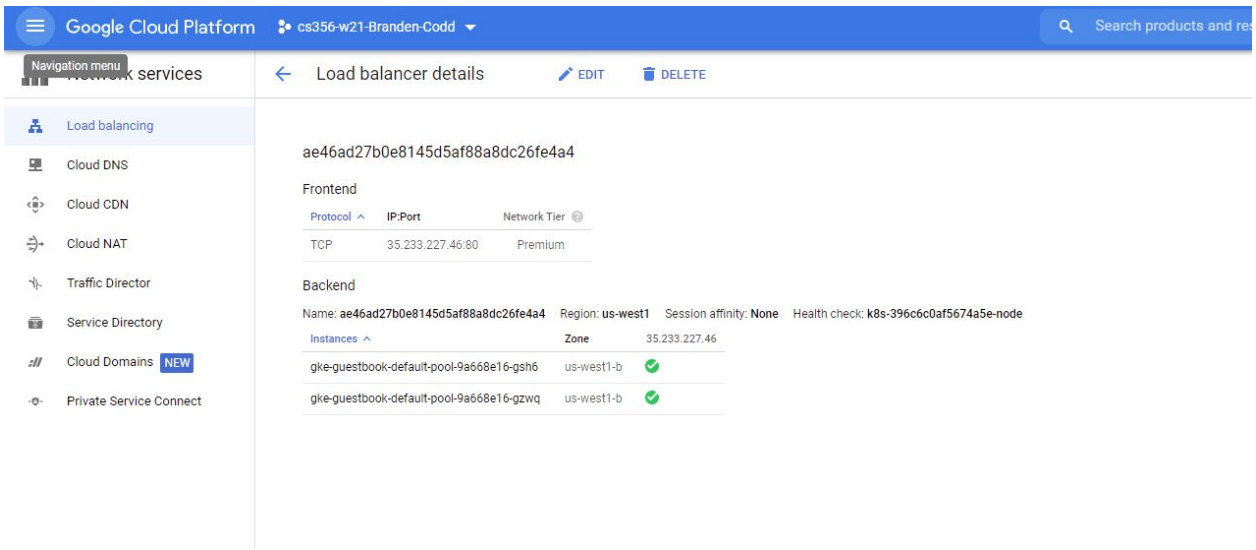
Filter Filter pods

Name	Status	CPU requested	Memory requested	Storage requested	Namespace	Restarts	Created on
event-exporter-gke-564fb97f9-zg5hc	Running	0 CPU	0 B	0 B	kube-system	0	Feb 23, 2021, 5:40:38 PM
kube-dns-autoscaler-7f89fb6b79-zdxht	Running	20 mCPU	10.49 MB	0 B	kube-system	0	Feb 23, 2021, 5:40:43 PM
fluentbit-gke-478m8	Running	100 mCPU	209.72 MB	0 B	kube-system	0	Feb 23, 2021, 5:40:49 PM
gke-metrics-agent-jbvhg	Running	3 mCPU	52.43 MB	0 B	kube-system	0	Feb 23, 2021, 5:40:49 PM
pdcsi-node-mnsqp	Running	0 CPU	0 B	0 B	kube-system	0	Feb 23, 2021, 5:40:49 PM
kube-proxy-gke-guestbook-default-pool-9a668e16-gsh6	Running	100 mCPU	0 B	0 B	kube-system	0	Feb 23, 2021, 5:41:13 PM
kube-dns-6bd88c9b66-6z75q	Running	260 mCPU	115.34 MB	0 B	kube-system	0	Feb 23, 2021, 5:41:20 PM
guestbook-replicas-cd5pz	Running	0 CPU	0 B	0 B	default	0	Feb 23, 2021, 6:06:09 PM

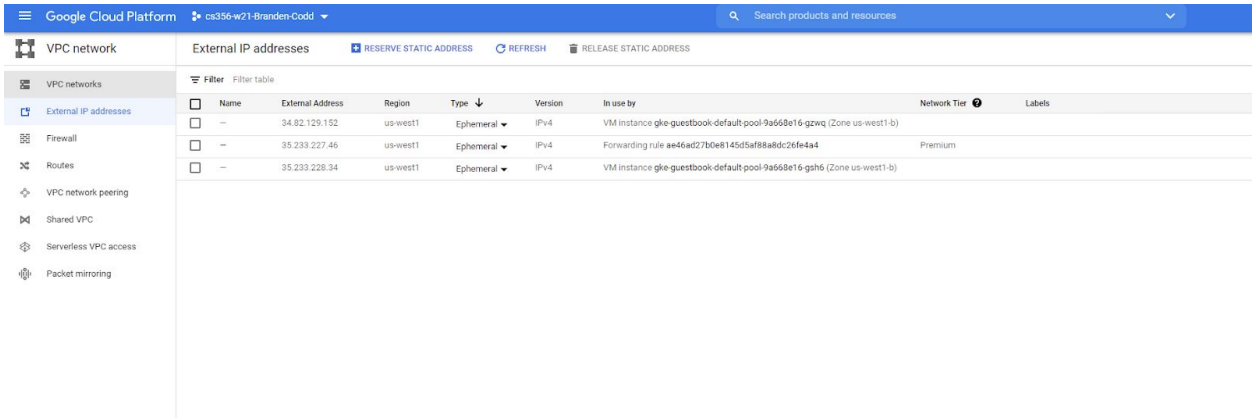




- Visit Network Services and show the load balancer and its details



- Visit VPC network and External IP addresses to see the addresses allocated. Which ones are associated with nodes and which ones are associated with the load balancer?



- The first and second ones are associated with the nodes

- Visit Container Registry and see the Docker image created.