LAB 2.2
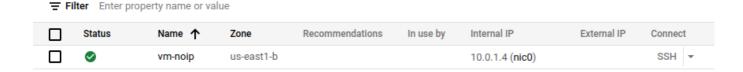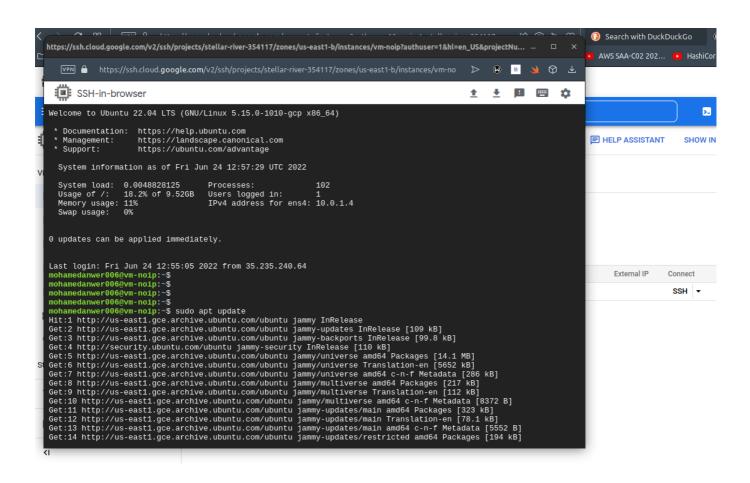
Create a VM without public ip then:

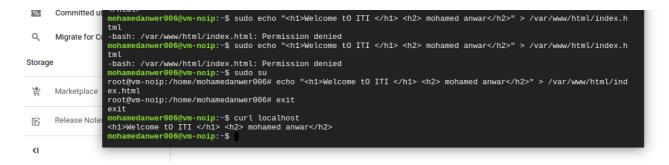- SSH into this vm and update system packages.

```
sudo apt update && sudo apt upgrade -y
```

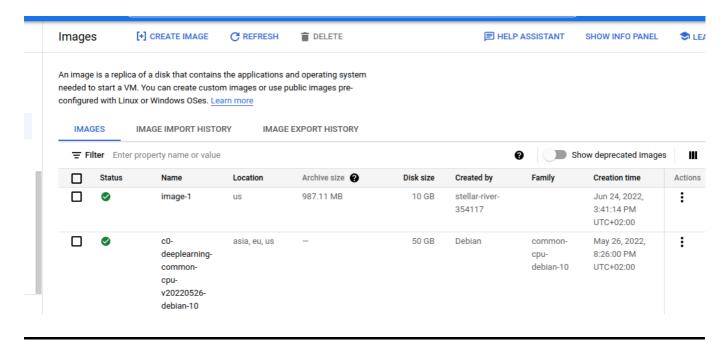- Setup Nginx Web Server and test your setup.

```
sudo apt install nginx -y
sudo systemctl enable --now nginx
```

```
mohamedanwer006@vm-noip:~$ sudo echo "<h1>Welcome tO ITI </h1> <h2> mohamed anwar</h2>" > /var/www/html/index.h
tml
-bash: /var/www/html/index.html: Permission denied
mohamedanwer006@vm-noip:~$ sudo echo "<h1>Welcome tO ITI </h1> <h2> mohamed anwar</h2>" > /var/www/html/index.h
tml
-bash: /var/www/html/index.html: Permission denied
mohamedanwer006@vm-noip:~$ sudo su
root@vm-noip:/home/mohamedanwer006# echo "<h1>Welcome tO ITI </h1> <h2> mohamed anwar</h2>" > /var/www/html/ind
ex.html
root@vm-noip:/home/mohamedanwer006# exit
exit
mohamedanwer006@vm-noip:~$ curl localhost
<h1>Welcome tO ITI </h1> <h2> mohamed anwar</h2>
mohamedanwer006@vm-noip:~$
```
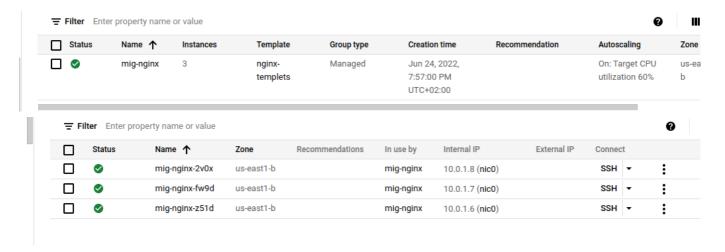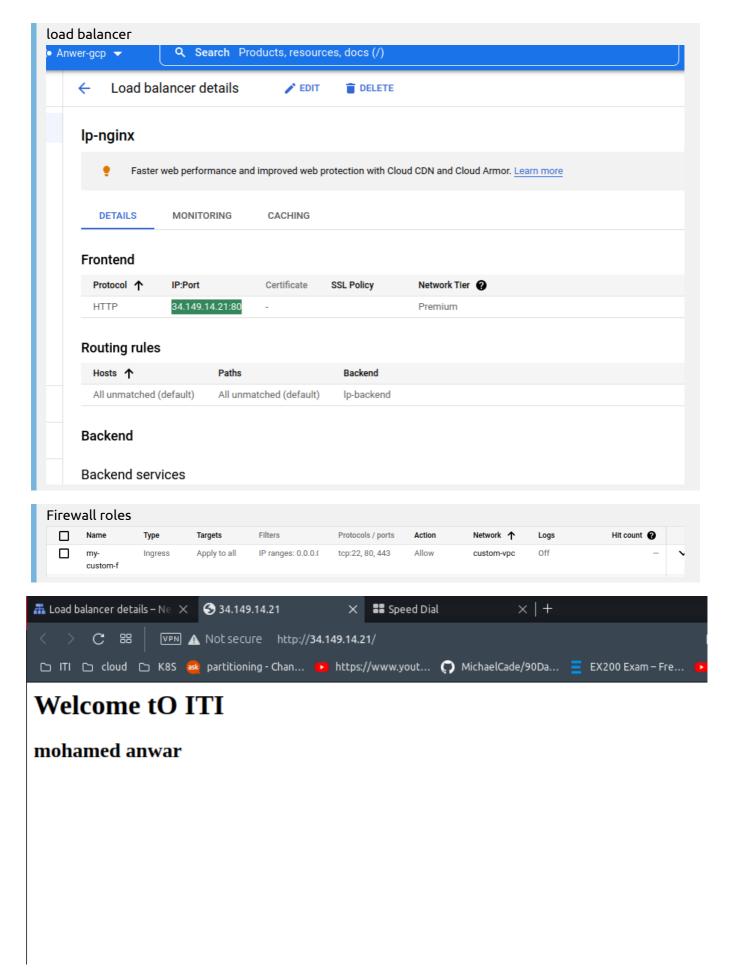
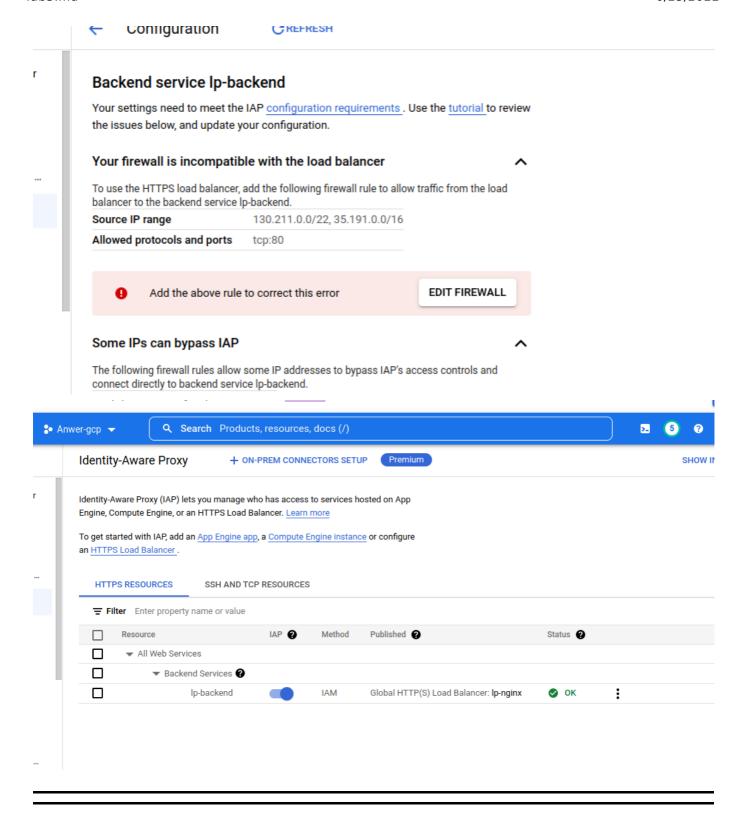- Create a custom image from this VM named "custom-img-nginx".

3.Create MIG (min 3 and max 5) of a template using the custom image "custom-img-nginx".

4.Create a Global (or Regional) HTTP Load balancer to access your MIGs Nginx setup.

load balancer

Firewall roles

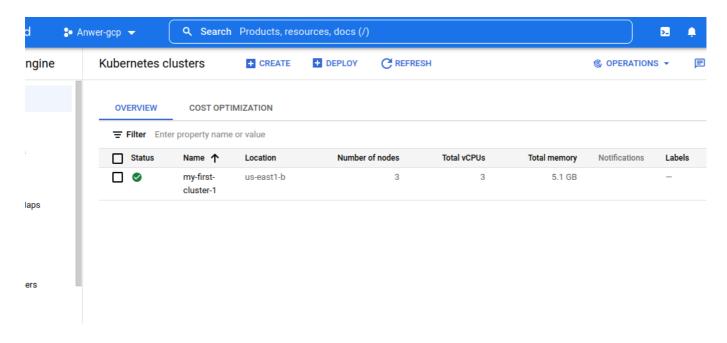|	Name	Type	Targets	Filters	Protocols / ports	Action	Network ↑	Logs	Hit count ❓	
☐	my-custom-f	Ingress	Apply to all	IP ranges: 0.0.0.(	tcp:22, 80, 443	Allow	custom-vpc	Off	—	⌄

Welcome tO ITI

mohamed anwar

5.Try to configure IAP at the load balancer level to protect your ingress access. Is it possible to have IAP enabled for HTTP resources?

Lab 3.1

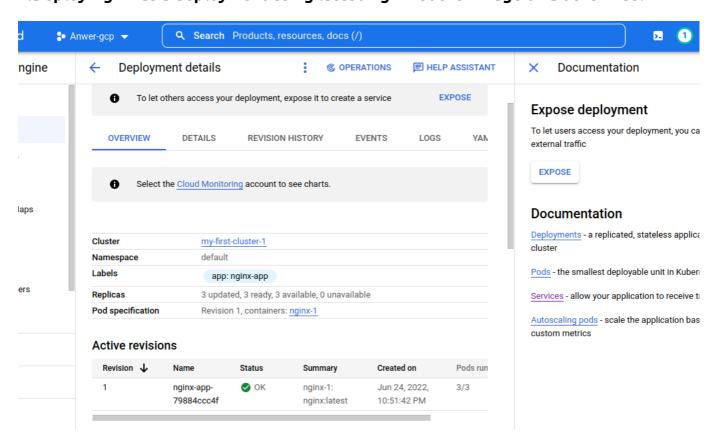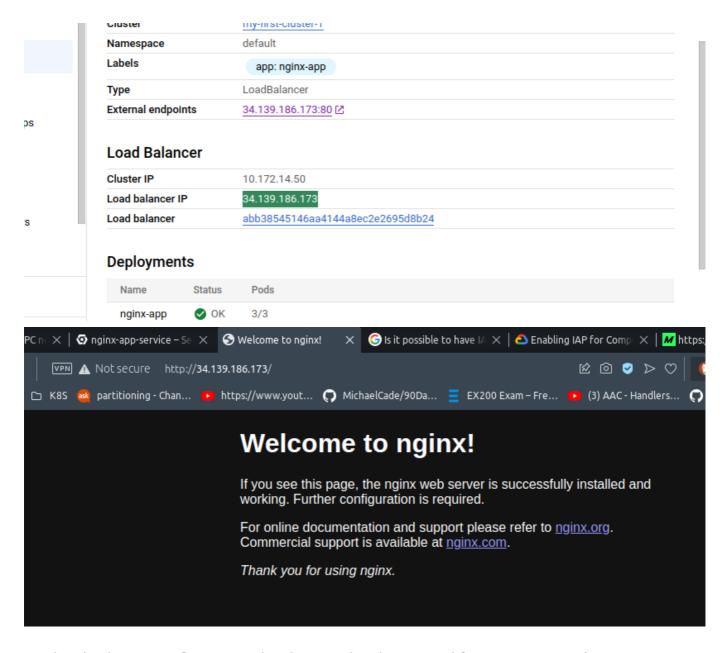### 1.Create a private GKE cluster.

d   :• Anwer-gcp ▼   Q Search Products, resources, docs (/)   ⊒   🔔

ngine   Kubernetes clusters   ➕ CREATE   ➕ DEPLOY   ⟳ REFRESH   ☉ OPERATIONS ▼   💬

OVERVIEW   COST OPTIMIZATION

☰ Filter   Enter property name or value

	Status	Name ↑	Location	Number of nodes	Total vCPUs	Total memory	Notifications	Labels
☐	✅	my-first-cluster-1	us-east1-b	3	3	5.1 GB		—

2.Deploy Nginx as a deployment using latest Nginx docker image on Docker Hub.

d   :• Anwer-gcp ▼   Q Search Products, resources, docs (/)   ⊒   ①

ngine   ← Deployment details   ⋮   ☉ OPERATIONS   📄 HELP ASSISTANT   ✕ Documentation

ℹ To let others access your deployment, expose it to create a service   EXPOSE

Expose deployment

OVERVIEW   DETAILS   REVISION HISTORY   EVENTS   LOGS   YAN

To let users access your deployment, you ca external traffic

ℹ Select the Cloud Monitoring account to see charts.

EXPOSE

Documentation

Cluster	my-first-cluster-1
Namespace	default
Labels	app: nginx-app
Replicas	3 updated, 3 ready, 3 available, 0 unavailable
Pod specification	Revision 1, containers: nginx-1

Deployments - a replicated, stateless applica cluster

Pods - the smallest deployable unit in Kuber

Services - allow your application to receive t

Autoscaling pods - scale the application bas custom metrics

Active revisions

Revision ↓	Name	Status	Summary	Created on	Pods run
1	nginx-app-79884ccc4f	✅ OK	nginx-1: nginx:latest	Jun 24, 2022, 10:51:42 PM	3/3

3.Expose your Nginx deployment using Kubernetes LoadBalancer Service.

Cluster	my-first-cluster-1
Namespace	default
Labels	app: nginx-app
Type	LoadBalancer
External endpoints	34.139.186.173:80 ⬀

Load Balancer

Cluster IP	10.172.14.50
Load balancer IP	34.139.186.173
Load balancer	abb38545146aa4144a8ec2e2695d8b24

Deployments

Name	Status	Pods
nginx-app	✅ OK	3/3

4.What is the type of GCP Load Balancer that is created for your LB service?

Network (target pool-based)
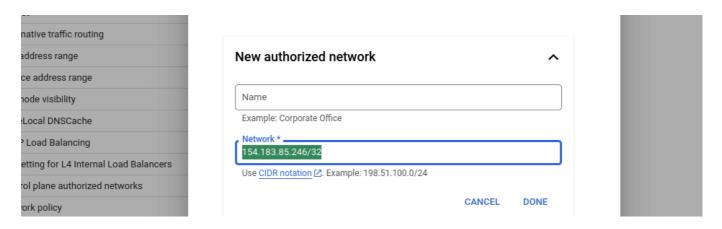
5.Use kubectl to view container logs.

6.Use cloud logging service to view container logs. [hint: search about cloud logging service for gke]

8.Create an autopilot GKE cluster with public control plane.

9.Enforce the cluster's control plane to accept only connections from your local machine.

native traffic routing

address range

ce address range

node visibility

eLocal DNSCache

P Load Balancing

etting for L4 Internal Load Balancers

rol plane authorized networks

ork policy

New authorized network ∧

Name

Example: Corporate Office

Network *
154.183.85.246/32

Use CIDR notation ↗. Example: 198.51.100.0/24

CANCEL   DONE

10.Install kubectl on local machine and use it to connect to the cluster.

```
mohamed@DevOps:$ gcloud container clusters get-credentials autopilot-cluster-1 --zone us-east1
Fetching cluster endpoint and auth data.
kubeconfig entry generated for autopilot-cluster-1.

mohamed@DevOps:$ kubectl get config
error: the server doesn't have a resource type "config".

mohamed@DevOps:$ kubectl get po
No resources found in default namespace.

mohamed@DevOps:$ kubectl get ns
NAME              STATUS   AGE
default           Active   11m
kube-node-lease   Active   11m
kube-public       Active   11m
kube-system       Active   11m

mohamed@DevOps:$
```