**Task 1 - create a jump host instance**

$ gcloud auth list

$ gcloud config list project

**Task 2 - Create a Kubernetes cluster**

$ gcloud config set compute/zone us-east1-b

$ gcloud container clusters create nucleus-jumphost-webserver1

$ gcloud container clusters get-credentials nucleus-jumphost-webserver1

$ kubectl create deployment hello-app --image=gcr.io/google-samples/hello-app:2.0

$ kubectl expose deployment hello-app --type=LoadBalancer --port 8080

**Task 3 -**

$ kubectl get service

$ cat << EOF > startup.sh

> #! /bin/bash

> apt-get update

> apt-get install -y nginx

> service nginx start

$ gcloud compute instance-templates create nginx-template --metadata-from-file startup-script=startup.sh

$ gcloud compute target-pools create nginx-pool

Did you mean region [asia-southeast1] for target pool: [nginx-pool]

(Y/n)? n

Please enter your numeric choice: 20

$ gcloud compute instance-groups managed create nginx-group \

> --base-instance-name nginx \

> --size 2 \

> --template nginx-template \

> --target-pool nginx-pool

$ gcloud compute instance list

$ gcloud compute firewall-rules create wwww-firewall --allow tcp:80

$ gcloud compute forwarding-rules create nginx-lb \

> --region us-east1 \

> --ports=80 \

> --target-pool nginx-pool

$ gcloud compute forwarding-rules list

$ gcloud compute http-health-checks create http-basic-check

$ gcloud compute instance-groups managed set-named-ports nginx-group --named-ports http:80

$ gcloud compute backend-services create nginx-backend \

> --protocol HTTP --http-health-checks http-basic-check --global

$ gcloud compute backend-services add-backend nginx-backend \

> --instance-group nginx-group \

> --instance-group-zone us-east1-b \

> --global

$ gcloud compute url-maps create web-map --default-service nginx-backend

$ gcloud compute target-http-proxies create http-lb-proxy --url-map web-map

$ gcloud compute forwarding-rules create http-content-rule \

> --global \

> --target-http-proxy http-lb-proxy \

> --ports 80

$ gcloud compute forwarding-rules list