In Class – Lab 1
Part – B

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Task 1. Set a default compute zone

gcloud compute project-info add-metadata --metadata google-compute-default-zone=us-centra1-c

Updated [https://www.googleapis.com/compute/v1/projects/rgr-06].

gcloud config set compute/zone us-central1-b

Updated property [compute/zone].

```
C:\Users\GopalReddyRanjith\AppData\Local\Google\Cloud SDK>gcloud compute project-info add-metadata --metadata google-compute-default-zone=us-centra1-c
Updated [https://www.googleapis.com/compute/v1/projects/rgr-06].

C:\Users\GopalReddyRanjith\AppData\Local\Google\Cloud SDK>gcloud config set compute/zone us-central1-b
Updated property [compute/zone].
```

Task 2. Create a GKE cluster

GKE cluster is created using the below gcloud cli command,

gcloud container clusters create in-class-lab-1

kubeconfig entry generated for in-class-lab-1.

NAME LOCATION MASTER_VERSION MASTER_IP MACHINE_TYPE NODE_VERSION NUM_NODES STATUS

in-class-lab-1 us-central1-b 1.22.12-gke.300 34.70.43.234 e2-medium 1.22.12-gke.300 3 **RUNNING**

```
C:\Users\GopalReddyRanjith\AppData\Local\Google\Cloud SDK>gcloud container clusters create in-class-lab-1
WARNING: Accessing a Kubernetes Engine cluster requires the kubernetes commandline
client [kubectl]. To install, run
  $ gcloud components install kubectl

Default change: VPC-native is the default mode during cluster creation for versions greater than 1.21.0-gke.1500. To create advanced routes based clusters, please pass the
`--no-enable-ip-alias` flag
Default change: During creation of nodepools or autoscaling configuration changes for cluster versions greater than 1.24.1-gke.800 a default location policy is applied. For
 Spot and PVM it defaults to ANY, and for all other VM kinds a BALANCED policy is used. To change the default values use the `--location-policy` flag.
Note: Your Pod address range (`--cluster-ipv4-cidr`) can accommodate at most 1008 node(s).
Creating cluster in-class-lab-1 in us-central1-b... Cluster is being health-checked (master is healthy)...done.
Created [https://container.googleapis.com/v1/projects/rgr-06/zones/us-central1-b/clusters/in-class-lab-1].
To inspect the contents of your cluster, go to: https://console.cloud.google.com/kubernetes/workload_/gcloud/us-central1-b/in-class-lab-1?project=rgr-06
CRITICAL: ACTION REQUIRED: gke-gcloud-auth-plugin, which is needed for continued use of kubectl, was not found or is not executable. Install gke-gcloud-auth-plugin for use
with kubectl by following https://cloud.google.com/blog/products/containers-kubernetes/kubectl-auth-changes-in-gke
kubeconfig entry generated for in-class-lab-1.
NAME           LOCATION       MASTER_VERSION   MASTER_IP     MACHINE_TYPE  NODE_VERSION     NUM_NODES  STATUS
in-class-lab-1  us-central1-b  1.22.12-gke.300  34.70.43.234  e2-medium     1.22.12-gke.300  3          RUNNING
```

Task 3. Get authentication credentials for the cluster

To get authorization to the cluster we use below command with the cluster name to connect to

gcloud container clusters get-credentials in-class-lab-1

Fetching cluster endpoint and auth data.

kubeconfig entry generated for in-class-lab-1.

```
C:\Users\GopalReddyRanjith\AppData\Local\Google\Cloud SDK>gcloud container clusters get-credentials in-class-lab-1
Fetching cluster endpoint and auth data.
kubeconfig entry generated for in-class-lab-1.
```

Task 4. Deploy an application to the cluster

Once we are connected to the cluster we use the commands below to create the deployment, which is basically application creation. Followed by using kubectl expose command we expose the application created, here we are using type as LoadBalancer so that we get a external ip and using which we can access the application created from the external world outside cluster.

kubectl create deployment hello-server --image=us-docker.pkg.dev/google-\samples/containers/gke/hello-app:1.0

kubectl get pods

NAME READY STATUS RESTARTS AGE

hello-server-5bd6b6875f-8jzmm 1/1 Running 0 8s

```
C:\Users\GopalReddyRanjith\AppData\Local\Google\Cloud SDK>kubectl create deployment hello-server --image=us-docker.pkg.dev/google-samples/containers/gke/hello-app:1.0
deployment.apps/hello-server created

C:\Users\GopalReddyRanjith\AppData\Local\Google\Cloud SDK>kubectl get pods
NAME                           READY   STATUS    RESTARTS   AGE
hello-server-5bd6b6875f-8jzmm   1/1     Running   0          8s
```

kubectl expose deployment hello-server --type LoadBalancer --port 80 --target-port 8080

service/hello-server exposed

```
C:\Users\GopalReddyRanjith\AppData\Local\Google\Cloud SDK>kubectl expose deployment hello-server --type LoadBalancer --port 80 --target-port 8080
service/hello-server exposed

C:\Users\GopalReddyRanjith\AppData\Local\Google\Cloud SDK>kubectl get services -o wide
NAME           TYPE           CLUSTER-IP    EXTERNAL-IP   PORT(S)        AGE   SELECTOR
hello-server   LoadBalancer   10.44.7.166   <pending>     80:32474/TCP   5s    app=hello-server
kubernetes     ClusterIP      10.44.0.1     <none>        443/TCP        24m   <none>
```

Get IP address of the service using command, *kubectl get services –o wide*

```
C:\Users\GopalReddyRanjith\AppData\Local\Google\Cloud SDK>kubectl get services -o wide
NAME           TYPE           CLUSTER-IP    EXTERNAL-IP   PORT(S)        AGE   SELECTOR
hello-server   LoadBalancer   10.44.7.166   34.67.29.78   80:32474/TCP   59s   app=hello-server
kubernetes     ClusterIP      10.44.0.1     <none>        443/TCP        25m   <none>
```

Using the IP address we will be able to access the hello world application

Task 5. Deleting the cluster

Using the below command we delete the GKE cluster

gcloud container clusters delete in-class-lab-1

```
C:\Users\GopalReddyRanjith\AppData\Local\Google\Cloud SDK>gcloud container clusters delete in-class-lab-1
The following clusters will be deleted.
 - [in-class-lab-1] in [us-central1-b]

Do you want to continue (Y/n)?  Y

Deleting cluster in-class-lab-1...done.
Deleted [https://container.googleapis.com/v1/projects/rgr-06/zones/us-central1-b/clusters/in-class-lab-1].
```