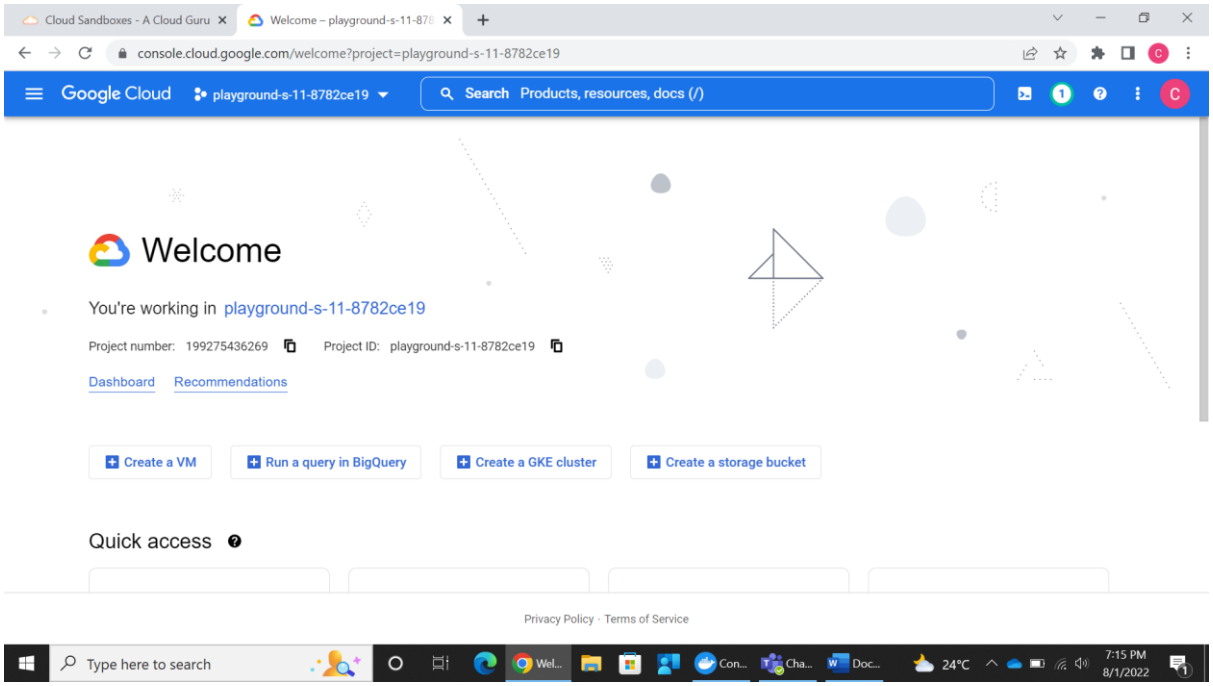
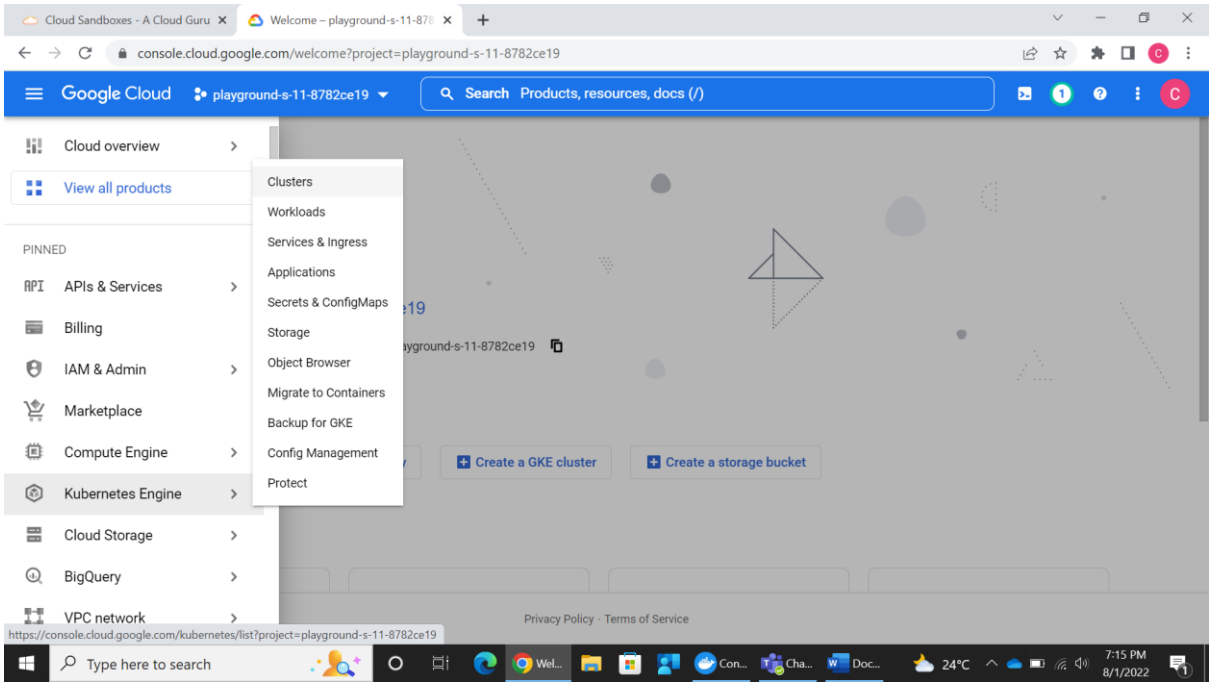
Kubernetes (K8S) - 3 Tier Architecture Implementation

In this project, created 3 tier architecture using Kubernetes. I uploaded all the files (including screenshots file Kubernetes_project.docx) to the github (**https://github.com/sudheerkumar19/Kubernetes-Project.git**). I cloned that file, and I opened that folder and executed all the commands.

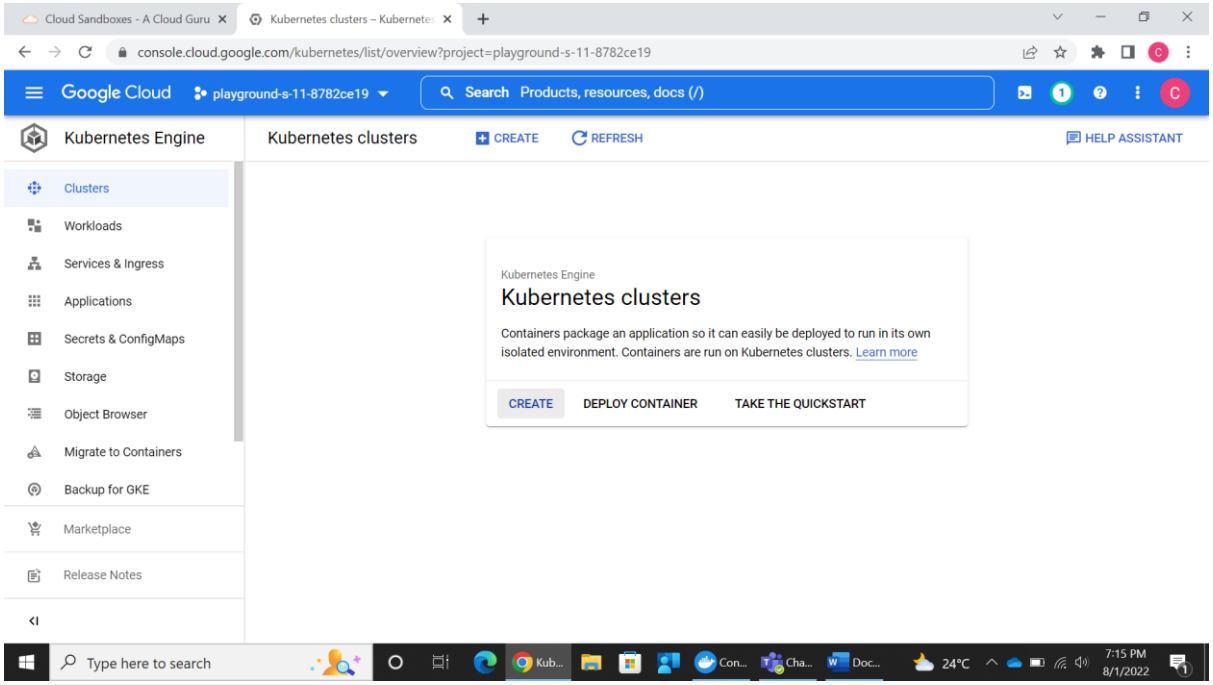
1. **I logged in GCP through acloud guru playground.**



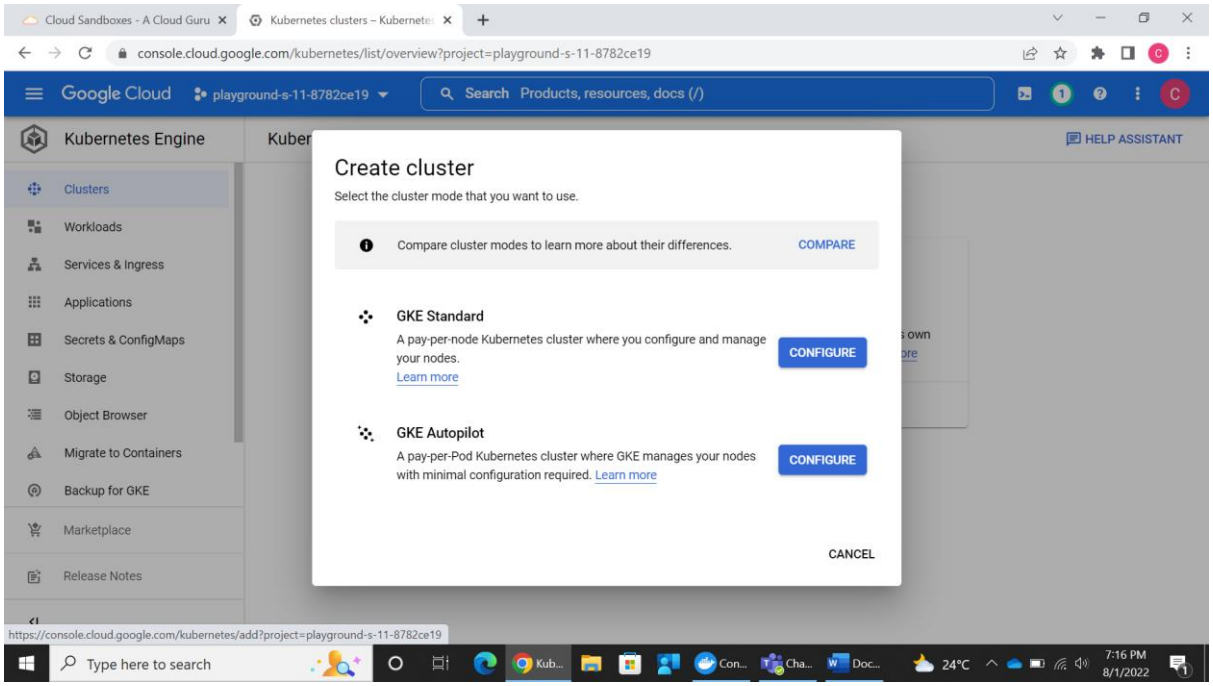
2. **Choose Services -→ Kubernetes Engine --→ Clusters**

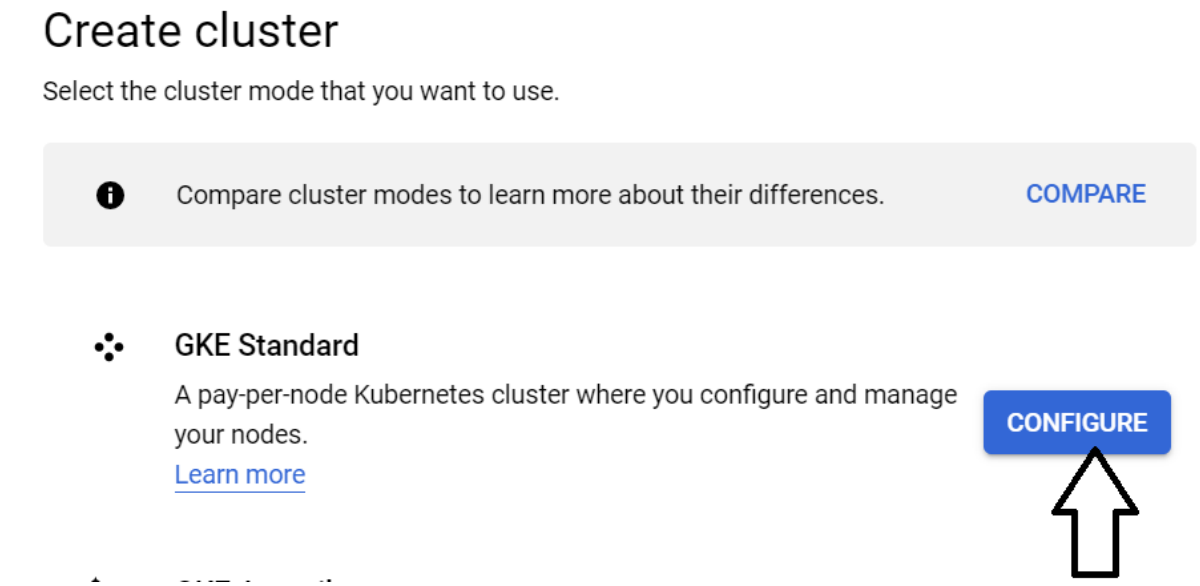


3. **Click on CREATE, GCP creates a controller and 3 nodes.**

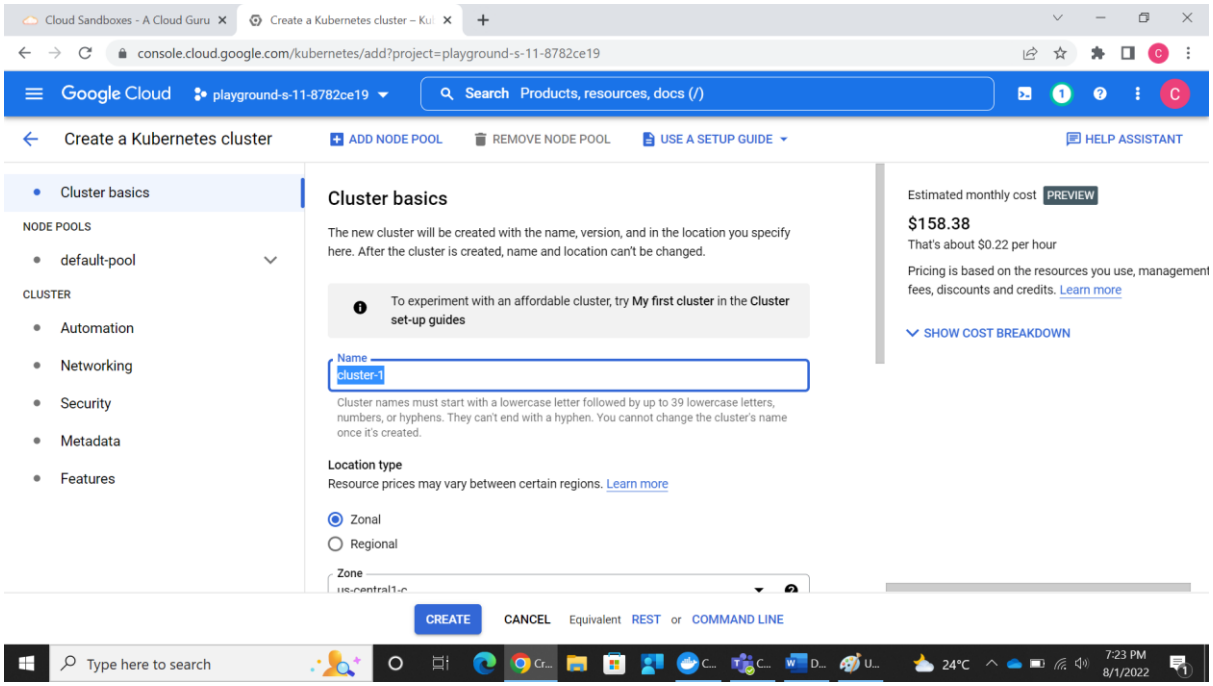


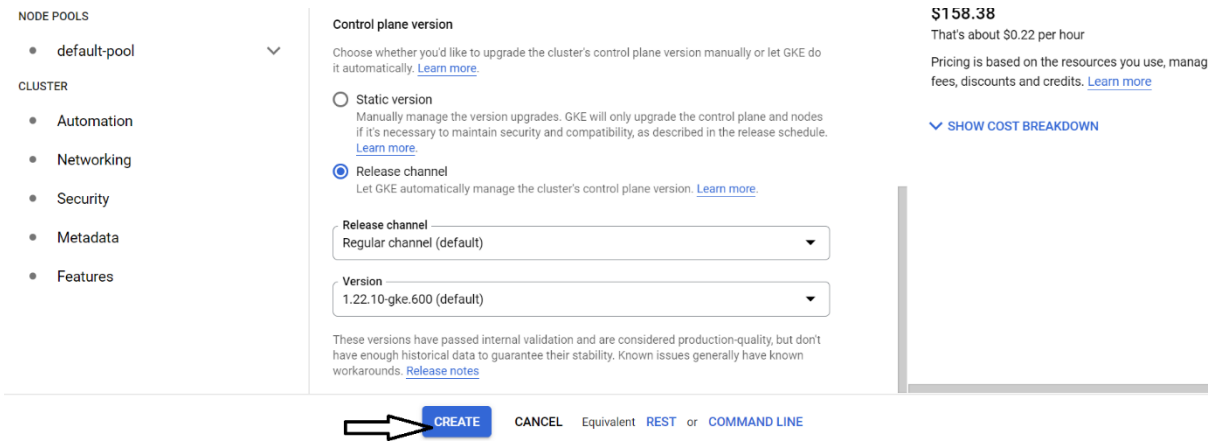
4. **Click on GKE Standard→ COFIGURE**



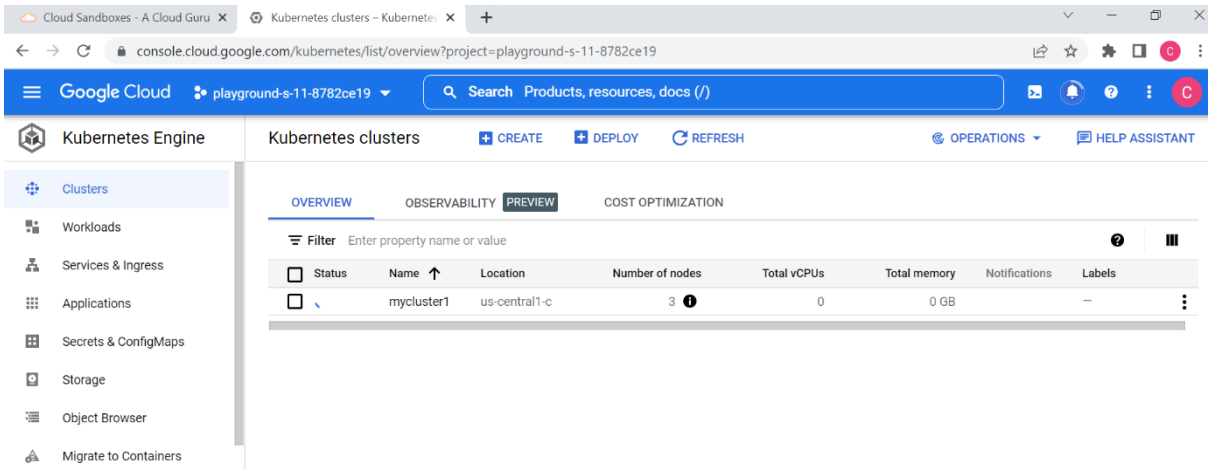


5. **Specify cluster name and click on CREATE.**

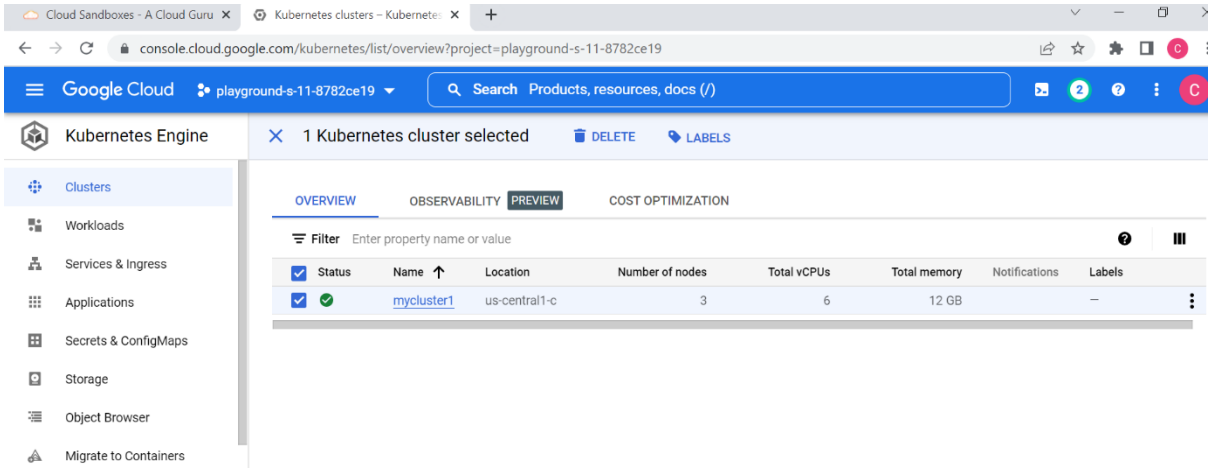




6. Processing to create Cluster.



7. Cluster has created.



8. **Connecting through cloudshell and cloning the github project files into our cluster.**

```
Welcome to Cloud Shell! Type "help" to get started.
Your Cloud Platform project in this session is set to playground-s-11-479dd284.
cloud_user_p_d55c6f68@cloudshell:~ (playground-s-11-479dd284)$ gcloud container clusters get-credentials mycluster1 --zone us-central1-a --project playground-s-11-479dd284
Fetching cluster endpoint and auth data.
kubeconfig entry generated for mycluster1.
cloud_user_p_d55c6f68@cloudshell:~ (playground-s-11-479dd284)$ git clone https://github.com/sunildevops77/kube_project_durga.git
```

9. **Go to the specific project folder.**

```
cloud_user_p_d55c6f68@cloudshell:~ (playground-s-11-479dd284)$ cd kube_project_durga
cloud_user_p_d55c6f68@cloudshell:~/kube_project_durga (playground-s-11-479dd284)$
```

10. **Executing all .yml files. These files are related to**

```
cloud_user_p_d55c6f68@cloudshell:~/kube_project_durga (playground-s-11-479dd284)$ kubectl create -f  voting-app-pod.yml
pod/voting-app-pod created
cloud_user_p_d55c6f68@cloudshell:~/kube_project_durga (playground-s-11-479dd284)$ kubectl  get pods
NAME             READY   STATUS    RESTARTS   AGE
voting-app-pod   1/1     Running   0          16s
```

```
cloud_user_p_d55c6f68@cloudshell:~/kube_project_durga (playground-s-11-479dd284)$ kubectl create -f  redis-pod.yml
pod/redis-pod created
cloud_user_p_d55c6f68@cloudshell:~/kube_project_durga (playground-s-11-479dd284)$
```

```
cloud_user_p_d55c6f68@cloudshell:~/kube_project_durga (playground-s-11-479dd284)$ kubectl create -f  worker-app-pod.yml
pod/worker-app-pod created
cloud_user_p_d55c6f68@cloudshell:~/kube_project_durga (playground-s-11-479dd284)$
```

```
cloud_user_p_d55c6f68@cloudshell:~/kube_project_durga (playground-s-11-479dd284)$ kubectl create -f postgres-pod.yml
pod/postgres-pod created
cloud_user_p_d55c6f68@cloudshell:~/kube_project_durga (playground-s-11-479dd284)$
```

```
cloud_user_p_d55c6f68@cloudshell:~/kube_project_durga (playground-s-11-479dd284)$ kubectl create -f result-app-pod.yml
pod/result-app-pod created
cloud_user_p_d55c6f68@cloudshell:~/kube_project_durga (playground-s-11-479dd284)$
```

```
cloud_user_p_d55c6f68@cloudshell:~/kube_project_durga (playground-s-11-479dd284)$ kubectl create -f voting-app-service.yml
service/voting-service created
cloud_user_p_d55c6f68@cloudshell:~/kube_project_durga (playground-s-11-479dd284)$
```

```
cloud_user_p_d55c6f68@cloudshell:~/kube_project_durga (playground-s-11-479dd284)$ kubectl create -f  redis-service.yml
service/redis-service created
cloud_user_p_d55c6f68@cloudshell:~/kube_project_durga (playground-s-11-479dd284)$
```

```
cloud_user_p_d55c6f68@cloudshell:~/kube_project_durga (playground-s-11-479dd284)$ kubectl create -f postgres-service.yml
service/db-service created
cloud_user_p_d55c6f68@cloudshell:~/kube_project_durga (playground-s-11-479dd284)$
```

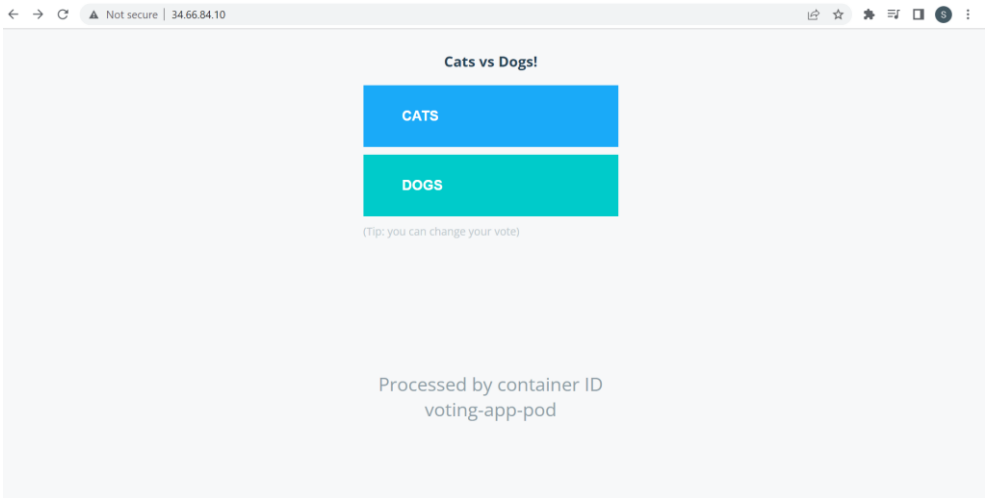
```
cloud_user_p_d55c6f68@cloudshell:~/kube_project_durga (playground-s-11-479dd284)$ kubectl create -f result-app-service.yml
service/result-service created
cloud_user_p_d55c6f68@cloudshell:~/kube_project_durga (playground-s-11-479dd284)$
```

11. **To know all the information related to cluster, we use the following command.**

```
cloud_user_p_d55c6f68@cloudshell:~/kube_project_durga (playground-s-11-479dd284)$ kubectl get all
NAME                 READY   STATUS             RESTARTS      AGE
pod/postgres-pod     0/1     CrashLoopBackOff   5 (39s ago)   3m43s
pod/redis-pod        1/1     Running            0             4m52s
pod/result-app-pod   1/1     Running            0             3m8s
pod/voting-app-pod   1/1     Running            0             6m6s
pod/worker-app-pod   0/1     CrashLoopBackOff   5 (59s ago)   4m16s

NAME                     TYPE           CLUSTER-IP      EXTERNAL-IP     PORT(S)          AGE
service/db-service       ClusterIP      10.100.2.20     <none>          5432/TCP         69s
service/kubernetes       ClusterIP      10.100.0.1      <none>          443/TCP          12m
service/redis-service    ClusterIP      10.100.14.105   <none>          6379/TCP         106s
service/result-service   LoadBalancer   10.100.2.124    34.134.11.222   80:30103/TCP     34s
service/voting-service   LoadBalancer   10.100.13.196   34.66.84.10     80:31065/TCP     2m34s
cloud_user_p_d55c6f68@cloudshell:~/kube_project_durga (playground-s-11-479dd284)$
```

12. **By using external IP, we can execute in the browser. Then it displays the output on the screen.**



13. **After choosing our option, it looks like below screenshot.**