

# Kubernetes Assignment

```
ubuntu@ubuntu2204:~/Kubernetes/Kubernetes$ ls
backend-deployment.yaml backend-service.yaml frontend-deployment.yaml frontend-service.yaml kind-config.yaml
ubuntu@ubuntu2204:~$ kind create cluster --name app-cluster --config kind-config.yaml
Creating cluster "app-cluster" ...
Ensuring node image (kindest/node:v1.35.0) ...
Preparing nodes ...
Writing configuration ...
Starting control-plane ...
Installing CNI ...
Installing StorageClass ...
Set kubectl context to "kind-app-cluster"
You can now use your cluster with:
kubectl cluster-info --context kind-app-cluster
Have a nice day! ●
ubuntu@ubuntu2204:~$ kubectl get nodes
NAME           STATUS   ROLES    AGE   VERSION
app-cluster-control-plane   Ready   control-plane   12h   v1.35.0
ubuntu@ubuntu2204:~$
```

Create cluster and verify it

```
ubuntu@ubuntu2204:~/Kubernetes/Kubernetes$ ls
backend-deployment.yaml backend-service.yaml frontend-deployment.yaml frontend-service.yaml kind-config.yaml
ubuntu@ubuntu2204:~$ kind create cluster --name app-cluster --config kind-config.yaml
Creating cluster "app-cluster" ...
Ensuring node image (kindest/node:v1.35.0) ...
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Writing configuration ...
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Installing CNI ...
Installing StorageClass ...
Set kubectl context to "kind-app-cluster"
You can now use your cluster with:
kubectl cluster-info --context kind-app-cluster
Have a nice day! ●
ubuntu@ubuntu2204:~$ kubectl get nodes
NAME           STATUS   ROLES    AGE   VERSION
app-cluster-control-plane   Ready   control-plane   12h   v1.35.0
ubuntu@ubuntu2204:~$ kind load docker-image frontend:latest --name app-cluster
Image: "frontend:latest" with ID "sha256:900833c2867d996fe0d8cc5e9362c704ca25e234756c40888e88818c444" not yet present on node "app-cluster-control-plane", loading...
ubuntu@ubuntu2204:~$ kind load docker-image backend:latest --name app-cluster
Image: "backend:latest" with ID "sha256:4b7f59edc254aa077effdd25c2a0759110e095329ff770001a84ad2924ef74d0" not yet present on node "app-cluster-control-plane", loading...
ubuntu@ubuntu2204:~$
```

Load docker image to cluster

```
ubuntu@ubuntu2204:~$ kubectl apply -f backend-deployment.yaml
deployment.apps/backend created
ubuntu@ubuntu2204:~$ kubectl apply -f backend-service.yaml
service/backend-service created
ubuntu@ubuntu2204:~$ kubectl exec -it deploy/backend -- curl http://backend-service:8080/health
error: Internal error occurred: unable to upgrade connection: container not found ("Backend")
ubuntu@ubuntu2204:~$ kubectl get pods
NAME          READY   STATUS    RESTARTS   AGE
backend-5fbcd5175-mpg9z   0/1   ImagePullBackoff   0   6m
ubuntu@ubuntu2204:~$ kubectl get svc
NAME         TYPE        CLUSTER-IP      EXTERNAL-IP      PORT(S)        AGE
backend-service   ClusterIP   10.96.36.28   <none>        8080/TCP     8m
kubernetes     ClusterIP   10.96.0.1      <none>        441/TCP      12h
ubuntu@ubuntu2204:~$
```

deploy backend pods and service

```

root@elabuvu2204: ~ % kubectl apply -f Frontend-deployment.yaml
deployment.apps/frontend created
root@elabuvu2204: ~ % kubectl apply -f Frontend-service.yaml
The Service "Frontend-service" is invalid: spec.ports[0].nodePort: Invalid value: 8888: provided port is not in the valid range. The range of valid ports is 3000-32767
root@elabuvu2204: ~ % kubectl apply -f Frontend-service.yaml
Error: error validating "Frontend-service.yaml": v1.Service: Invalid field nodePort (must be in 3000-32767)
root@elabuvu2204: ~ % kubectl apply -f Frontend-service.yaml
The Service "Frontend-service" is invalid: spec.ports[0].nodePort: Invalid value: 8888: provided port is not in the valid range. The range of valid ports is 3000-32767
root@elabuvu2204: ~ % kubectl apply -f Frontend-service.yaml
service/frontend-service created

```

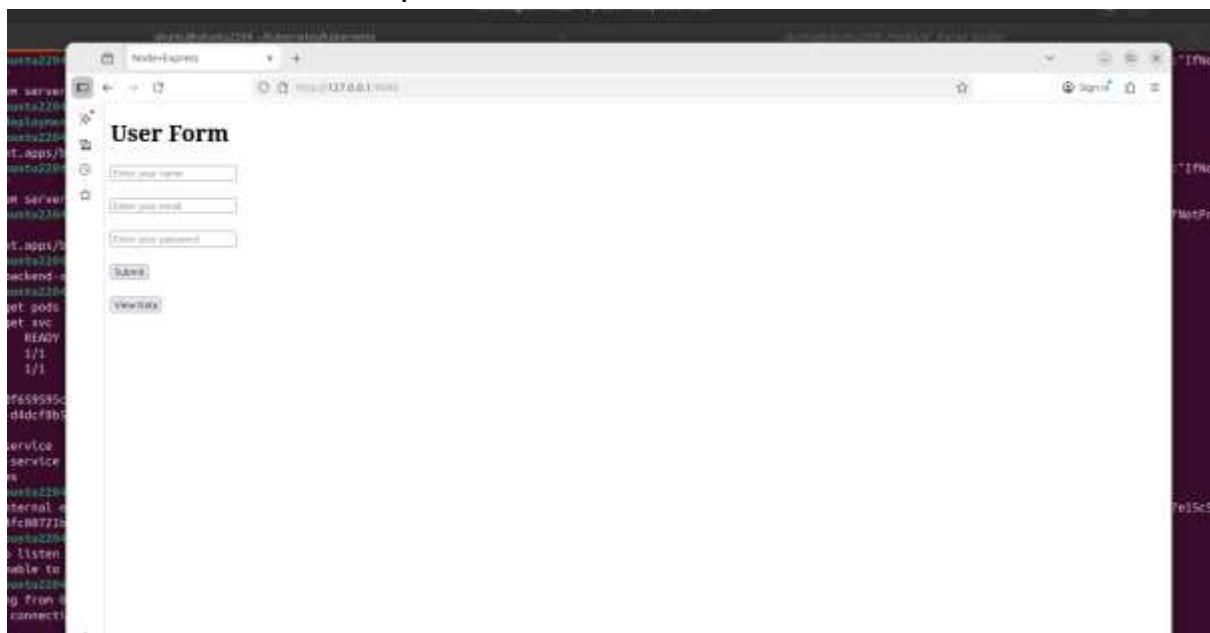
## Deploy frontend service

```

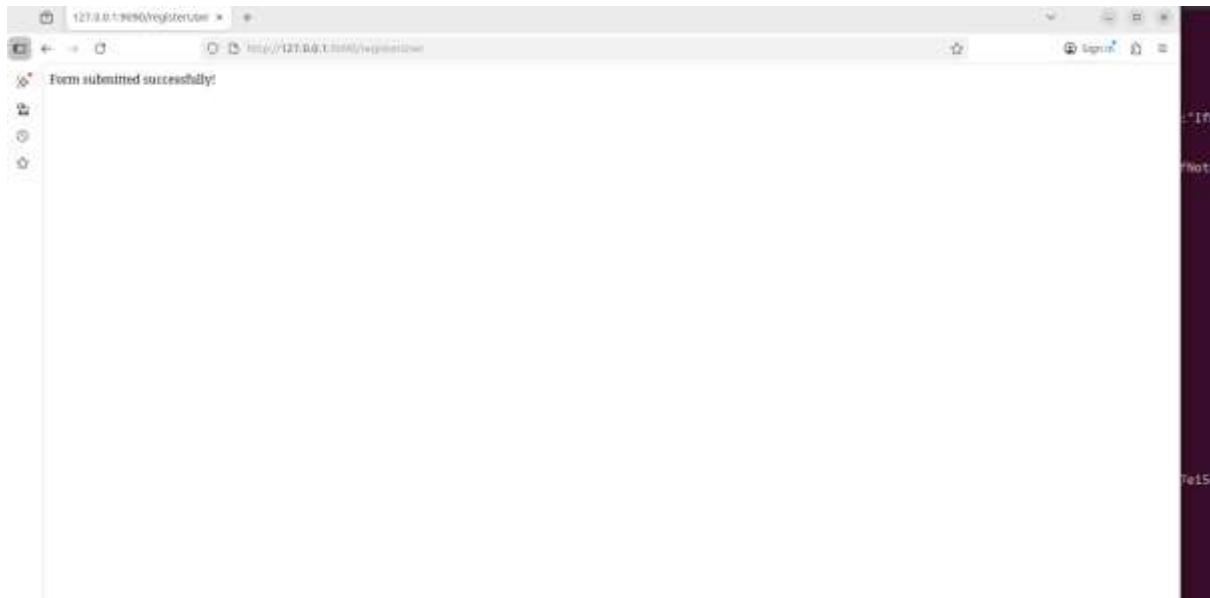
root@elabuvu2204: ~ % kubectl get pods
kubectl get pods
NAME      READY   STATUS    RESTARTS   AGE
backend   1/1     Running   0          25s
frontend  1/1     Running   0          4m19s
NAME      TYPE        CLUSTER-IP   EXTERNAL-IP   PORT(S)   AGE
backend   ClusterIP  10.96.38.210 <none>       8880/TCP   24m
frontend   ClusterIP  10.96.32.57  <none>       8880:30108/TCP   4m
kubernetes   ClusterIP  10.96.0.1  <none>       443/TCP   24m
root@elabuvu2204: ~ % kubectl exec -it display/frontend -- curl http://backend-service:8880
error: Internal error occurred: error executing command in container: failed to exec in container: failed to start user "47500000c714c1cb9789e7c5cwa977a1cde29
85d239893fc98721668b7032ac": OCI runtime exec failed: unable to start container process: exec: "curl": executable file not found in $PATH
root@elabuvu2204: ~ % kubectl port-forward svc/frontend-service 8888:8888 --address 0.0.0.0
unable to listen on port 8888: listeners failed to create with the following errors: [unable to create listener: error listening tcp4 0.0.0.0:8888: bind: address already in use]
error: unable to listen on any of the requested ports: [{8888:8888}]
root@elabuvu2204: ~ % kubectl port-forward svc/frontend-service 8888:8888 --address 0.0.0.0
portforwarding from 0.0.0.0:8888 --> 8888
handling connection for 8888

```

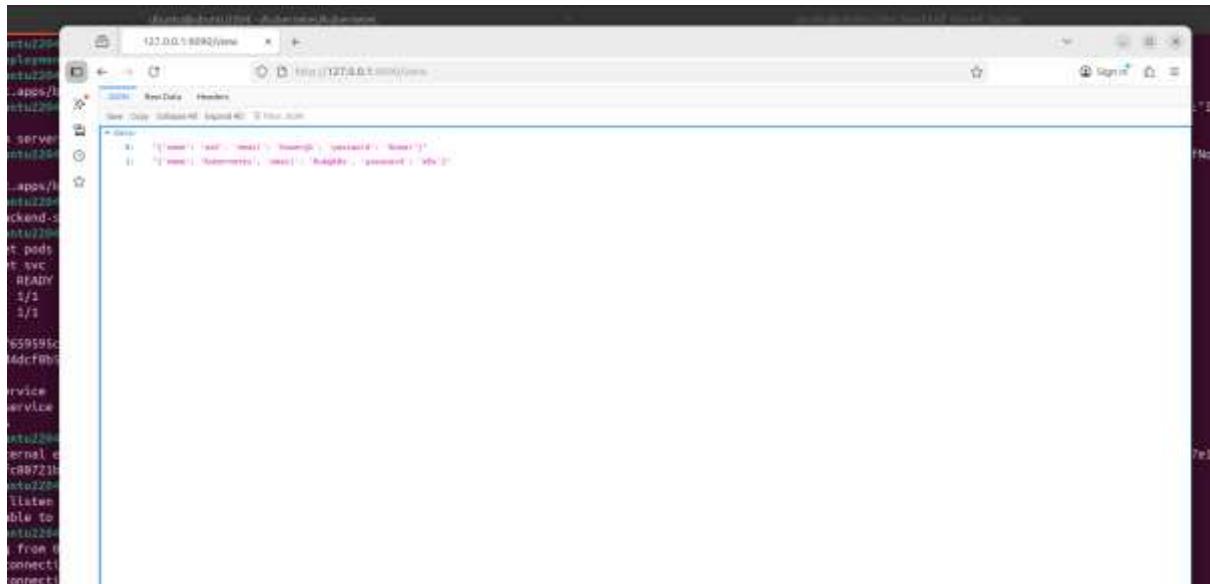
Check status of all pods and service  
all are running successfully  
and forward frontend port to 9090



We successfully able to access frontend/node app



data send to backed successful



Data stored at backend .