

Kubernetes Assignment

```
ubuntu@ubuntu2204:~/kubernetes$ ls
backend-deployment.yaml  backend-service.yaml  frontend-deployment.yaml  frontend-service.yaml  kind-config.yaml
ubuntu@ubuntu2204:~/kubernetes$ 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:~/kubernetes$ kubectl get nodes
NAME                                STATUS    ROLES    AGE   VERSION
app-cluster-control-plane           Ready    control-plane   12h   v1.35.0
ubuntu@ubuntu2204:~/kubernetes$
```

Create cluster and verify it

```
ubuntu@ubuntu2204:~/kubernetes$ ls
backend-deployment.yaml  backend-service.yaml  frontend-deployment.yaml  frontend-service.yaml  kind-config.yaml
ubuntu@ubuntu2204:~/kubernetes$ 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:~/kubernetes$ kubectl get nodes
NAME                                STATUS    ROLES    AGE   VERSION
app-cluster-control-plane           Ready    control-plane   12h   v1.35.0
ubuntu@ubuntu2204:~/kubernetes$ kind load docker-image frontend:latest --name app-cluster
Image "frontend:latest" with ID "sha256:90853c286f6c96f0ed8b0c4e9c362c70dc2a25634a756c40898b888619c444" not yet present on node "app-cluster-control-plane", loading...
ubuntu@ubuntu2204:~/kubernetes$ kind load docker-image backend:latest --name app-cluster
Image "backend:latest" with ID "sha256:467379dc3b44e037eff0dd5c8d3593110e995335f778101e84e024e7c4db" not yet present on node "app-cluster-control-plane", loading...
ubuntu@ubuntu2204:~/kubernetes$
```

Load docker image to cluster

```
ubuntu@ubuntu2204:~/kubernetes$ kubectl apply -f backend-deployment.yaml
deployment.apps/backend created
ubuntu@ubuntu2204:~/kubernetes$ kubectl apply -f backend-service.yaml
service/backend created
ubuntu@ubuntu2204:~/kubernetes$ 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:~/kubernetes$ kubectl get pods
NAME                                READY    STATUS    RESTARTS   AGE
backend-5fbc6f3175-s2p9x             0/1      ImagePullBackOff    0           0s
ubuntu@ubuntu2204:~/kubernetes$ kubectl get svc
NAME                                TYPE        CLUSTER-IP      EXTERNAL-IP  PORT(S)    AGE
backend-service                     ClusterIP   10.96.36.28      <none>       8080/TCP   81s
kubelet                             ClusterIP   10.96.0.1        <none>       443/TCP    12h
```

deploy backend pods and service

```

ubuntu@ubuntu2204:~/kubernetes$ cd
ubuntu@ubuntu2204:~/kubernetes$ kubectl apply -f Frontend-deployment.yaml
deployment.apps/frontend created
ubuntu@ubuntu2204:~/kubernetes$ 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 30000-32767
ubuntu@ubuntu2204:~/kubernetes$ vi frontend-service.yaml
Command 'vi' not found, but can be installed with:
sudo apt install vim          # version 2:9.1.0016-ubuntu7.9, or
sudo apt install neovim      # version 0.7.2-8
sudo apt install vim-gtk3    # version 2:9.1.0016-ubuntu7.9
sudo apt install vim-notif   # version 2:9.1.0016-ubuntu7.9
sudo apt install vim-nox     # version 2:9.1.0016-ubuntu7.9
ubuntu@ubuntu2204:~/kubernetes$ vi frontend-service.yaml
ubuntu@ubuntu2204:~/kubernetes$ kubectl apply -f frontend-service.yaml
The Service "frontend-service" is invalid: spec.ports[0].nodePort: Invalid value: 888: provided port is not in the valid range. The range of valid ports is 30000-32767
ubuntu@ubuntu2204:~/kubernetes$ vi frontend-service.yaml

[+] Stopped                               vi frontend-service.yaml
ubuntu@ubuntu2204:~/kubernetes$ vi frontend-service.yaml
ubuntu@ubuntu2204:~/kubernetes$ vi frontend-service.yaml
ubuntu@ubuntu2204:~/kubernetes$ cat frontend-service.yaml
apiVersion: v1
kind: Service
metadata:
  name: frontend-service
spec:
  type: NodePort
  selector:
    app: frontend
  ports:
    - port: 8080
      targetPort: 8080
      nodePort: 30108
ubuntu@ubuntu2204:~/kubernetes$ kubectl apply -f frontend-service.yaml
service/frontend-service created

```

Deploy frontend service

```

ubuntu@ubuntu2204:~/kubernetes$ kubectl get deploy
kubectl get pods
kubectl get svc

```

NAME	READY	UP-TO-DATE	AVAILABLE	AGE
backend	1/1	1	1	48s
frontend	1/1	1	1	11s

```

NAME                READY   STATUS    RESTARTS   AGE
backend-df69595c-9ell 1/1     Running   0           25s
frontend-d8dcf8b5d-jtcd 1/1     Running   0           4s10s

```

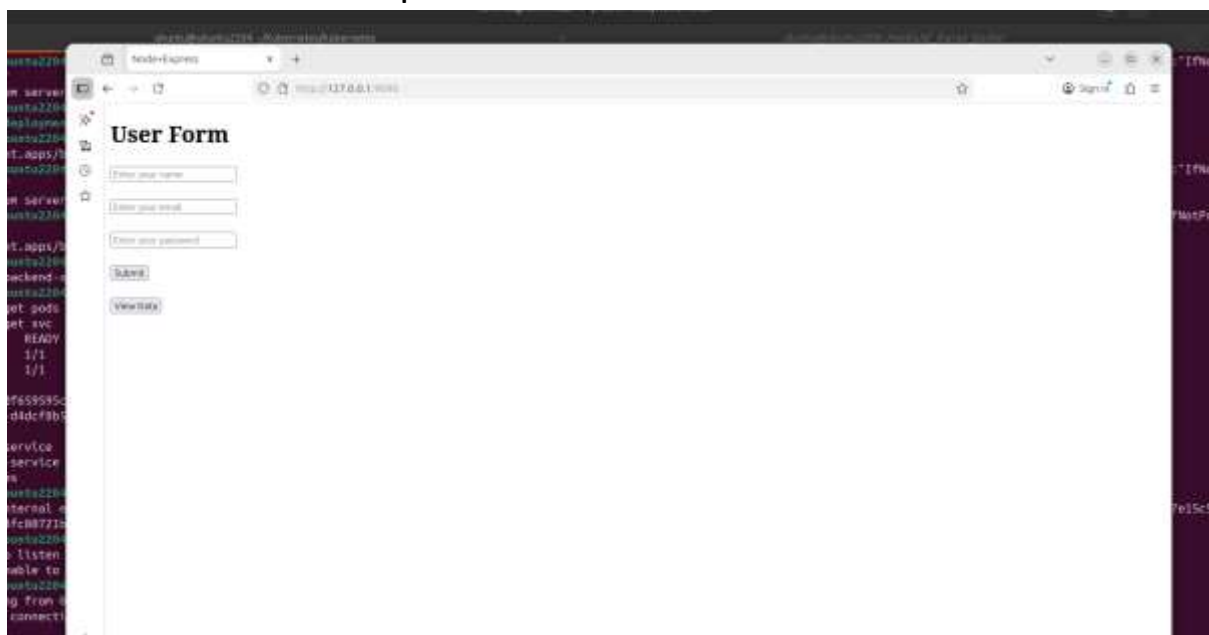
NAME	TYPE	CLUSTER-IP	EXTERNAL-IP	PORT(S)	AGE
backend-service	ClusterIP	10.96.38.210	<none>	8080/TCP	14m
frontend-service	NodePort	10.96.32.87	<none>	8080:30108/TCP	14m
kubernetes	ClusterIP	10.96.0.1	<none>	443/TCP	24m

```

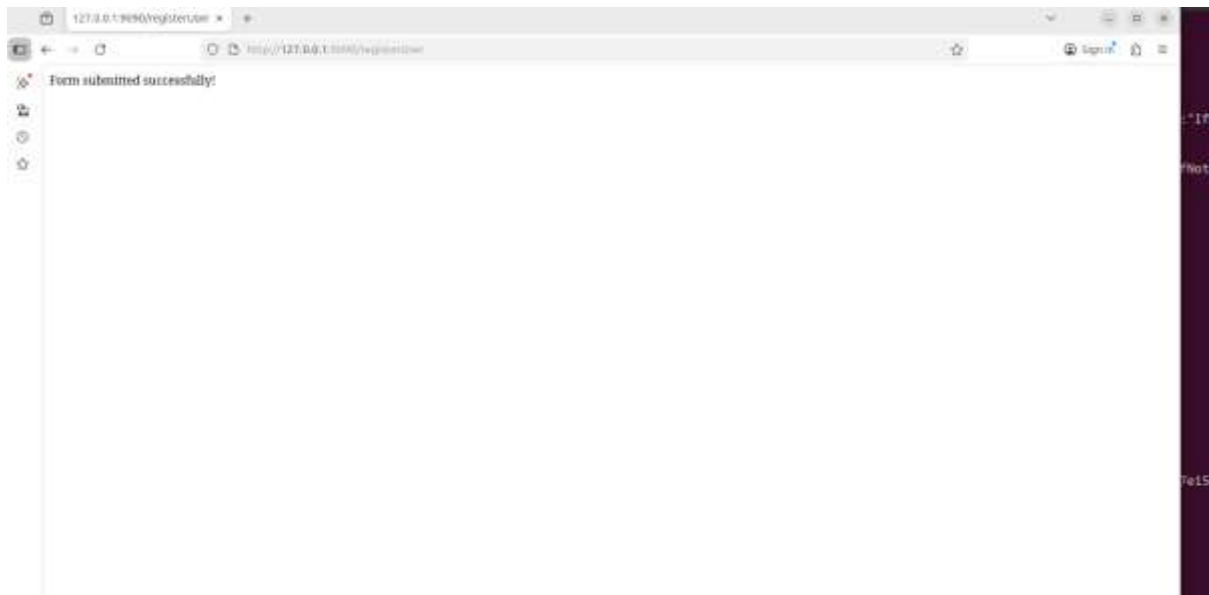
ubuntu@ubuntu2204:~/kubernetes$ kubectl exec -it deploy/frontend -- curl http://backend-service:8080/
error: Internal error occurred: Internal error occurred: error executing command in container: failed to exec in container: failed to start exec "47500100c754c1cb7930e7c50a977b135629
b18730493fc0877d0eb932ac": OCI runtime exec failed: exec failed: unable to start container process: exec: "curl": executable file not found in $PATH
ubuntu@ubuntu2204:~/kubernetes$ kubectl port-forward svc/frontend-service 8080:8080 --address 0.0.0.0
Unable to listen on port 8080: listeners failed to create with the following errors: [unable to create listener: error listen tcp 0.0.0.0:8080: bind: address already in use]
error: unable to listen on any of the requested ports: [[8080 8080]]
ubuntu@ubuntu2204:~/kubernetes$ kubectl port-forward svc/frontend-service 9090:8080 --address 0.0.0.0
Forwarding from 0.0.0.0:9090 -> 8080
Handling connection for 9090

```

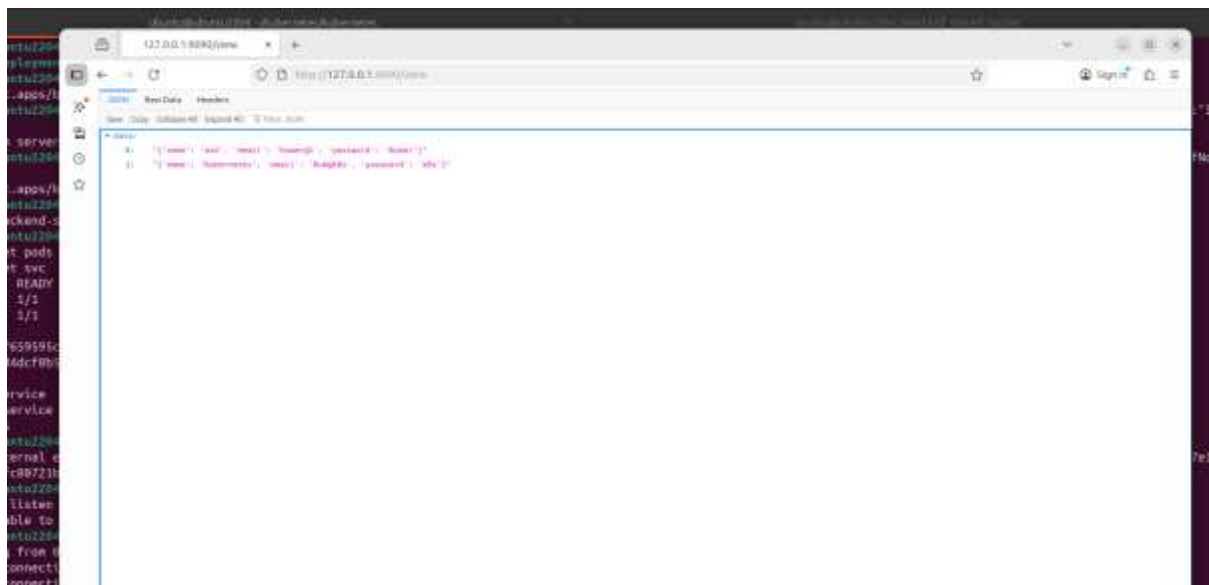
Check status of all pos and service
all are running successfully
and forward frontend port to 9090



We successfully able to access frontend/node app



data send to backed successful



Data stored at backend .