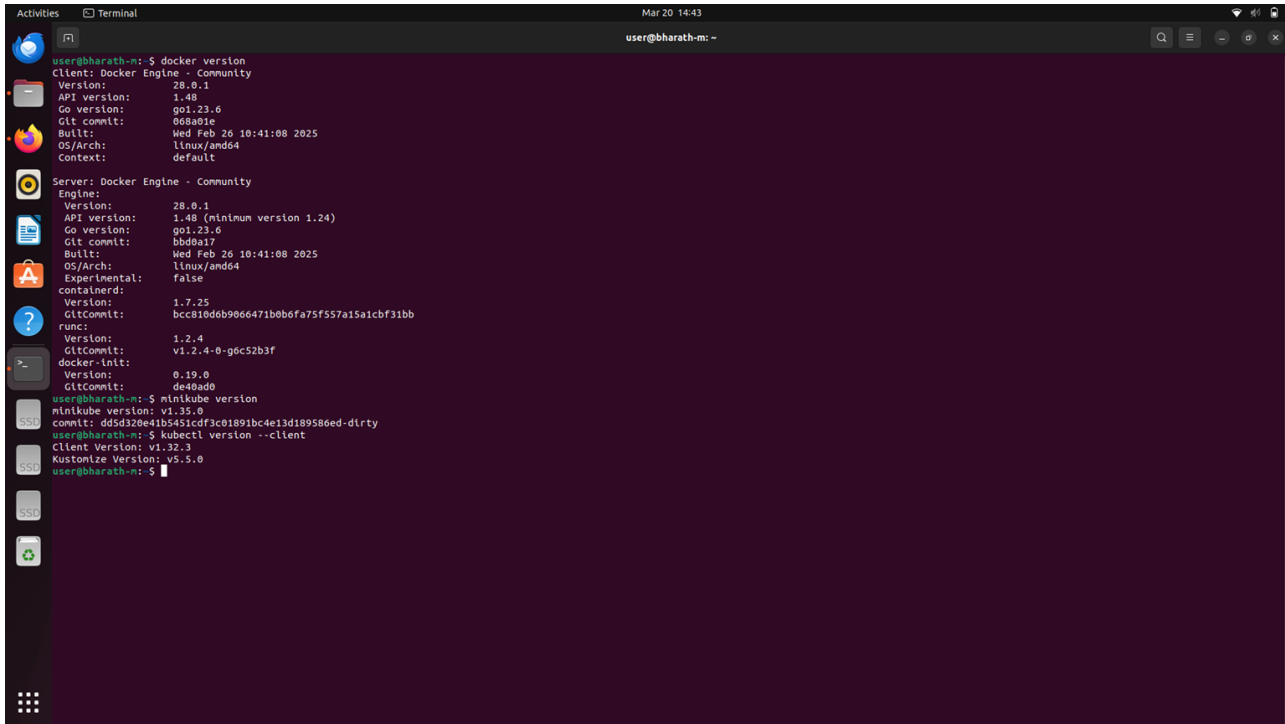


DAY - 3

Deploy an Nginx Container in Kubernetes and expose it with a NodePort Service

A terminal window with a dark purple background. The user is at a prompt 'user@bharath-m:~\$'. They run 'docker version' which shows client and server details for Docker Engine - Community. Then they run 'docker -init' showing version 0.19.0. Finally, they run 'minikube version' which shows v1.35.0. The terminal also shows some output from 'kubectl version --client' and 'minikube version --client'.

```
user@bharath-m:~$ docker version
Client: Docker Engine - Community
Version: 28.0.1
API version: 1.48
Go version: go1.23.6
Git commit: 068a01e
Built: Wed Feb 26 10:41:08 2025
OS/arch: linux/amd64
Context: default

Server: Docker Engine - Community
Engine:
Version: 28.0.1
API version: 1.48 (minimum version 1.24)
Go version: go1.23.6
Git commit: b0d0a17
Built: Wed Feb 26 10:41:08 2025
OS/arch: linux/amd64
Experimental: false
containerd:
Version: 1.7.25
GitCommit: bcc810d6b9066471b0b6fa75f557a15a1cbf31bb
runc:
Version: 1.2.4
GitCommit: v1.2.4-0-g6c52b3f
docker-init:
Version: 0.19.0
GitCommit: d440ad0

user@bharath-m:~$ minikube version
minikube version: v1.35.0
commit: dd5d320e41b5451cdf3c01891bc4e13d189586ed-dirty

user@bharath-m:~$ kubectl version --client
Client Version: v1.32.3
Kustomize Version: v5.5.0

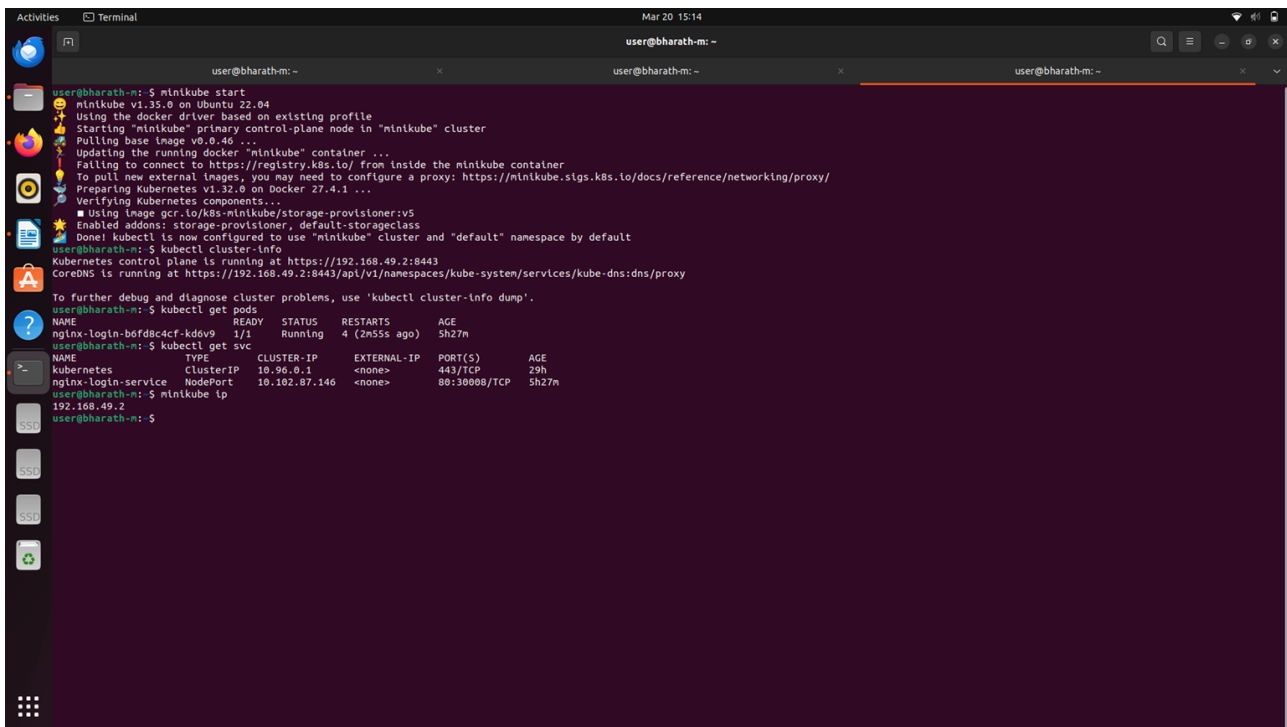
user@bharath-m:~$
```

sudo nano nginx-deployment.yml

nginx-deployment.yml

```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: nginx-login
spec:
  replicas: 1
  selector:
    matchLabels:
      app: nginx-login
  template:
    metadata:
      labels:
        app: nginx-login
    spec:
      containers:
        - name: nginx-login
          image: nginx:latest # Public Nginx image from Docker Hub
          ports:
            - containerPort: 80
---
apiVersion: v1
kind: Service
metadata:
  name: nginx-login-service
```

spec:
type: NodePort
selector:
app: nginx-login
ports:
- protocol: TCP
port: 80
targetPort: 80
nodePort: 30008



A terminal window showing the setup of a minikube cluster. The user runs 'minikube start', which pulls the base image, updates the docker driver, and starts the minikube cluster. It then runs 'kubectl cluster-info', showing the control plane running at https://192.168.49.2:8443. Finally, it runs 'kubectl get pods' and 'kubectl get svc', showing the nginx-login pod and service.

```
user@bharath-m:~$ minikube start
minikube v1.35.0 on Ubuntu 22.04
Using the docker driver based on existing profile
Starting "minikube" primary control-plane node in "minikube" cluster
Pulling base image v0.0.46 ...
Updating the running docker "minikube" container ...
Falling to connect to https://registry.k8s.io/ from inside the minikube container
To pull new external images, you may need to configure a proxy: https://minikube.sigs.k8s.io/docs/reference/networking/proxy/
Preparing Kubernetes v1.32.0 on Docker 27.4.1 ...
Verifying Kubernetes components...
Using image gcr.io/k8s-minikube/storage-provisioner:v5
Enabled addons: storage-provisioner, default-storageclass
Done! kubectrl is now configured to use "minikube" cluster and "default" namespace by default
user@bharath-m:~$ kubectl cluster-info
Kubernetes control plane is running at https://192.168.49.2:8443
CoreDNS is running at https://192.168.49.2:8443/api/v1/namespaces/kube-system/services/kube-dns:dns/proxy

To further debug and diagnose cluster problems, use 'kubectl cluster-info dump'.
user@bharath-m:~$ kubectl get pods
NAME                                READY   STATUS    RESTARTS   AGE
nginx-login-b6fd8c4cf-kdov9         1/1     Running   4 (2m55s ago)   5h27m
user@bharath-m:~$ kubectl get svc
NAME                TYPE          CLUSTER-IP   EXTERNAL-IP   PORT(S)          AGE
kubernetes          ClusterIP     10.96.0.1     <none>         443/TCP           29h
nginx-login-service NodePort      10.102.87.146 <none>         80:30008/TCP     5h27m
user@bharath-m:~$ minikube ip
192.168.49.2
user@bharath-m:~$
```

kubectl apply -f nginx-deployment.yml

Check if the pods are running:

kubectl get pods

Check if the service is created:

Kubectrl get svc

Find the ip:

minikube ip

