TASK 4

Objective: Deploy simple web application in k8s and expose with nodeport service (tools: k8s,ubuntu vm)

Kubernetes Deployment Troubleshooting Guide

STEP 1. Created a deployment using Nginx:

kubectl create deployment webapp --image=nginx --port=80

STEP 2. Exposed the deployment as a NodePort service:

kubectl expose deployment webapp --type=NodePort --port=80 --target-port=80

STEP 3. Checked the service to get the assigned NodePort:

kubectl get svc

STEP 4. Tried to access the service using Minikube URL:

minikube service webapp

STEP 5. Tried port-forwarding to 8080 but it was already in use.

- Checked using: sudo lsof -i :8080
- Found Jenkins (Java process) using port 8080 and killed it.
- Switched to port 9090, which worked.

Final Fixes and Best Practices

Option 1: Use NodePort (Recommended)

Instead of port-forwarding, access your app directly using Minikube NodePort:

Open in a browser: http://192.168.49.2:31298

Or use curl to check: curl http://192.168.49.2:31298

Option 2: Port-Forward on a Different Port

Since 8080 was busy, you correctly forwarded using 9090:

kubectl port-forward deployment/webapp 9090:80

Now, open: http://127.0.0.1:9090

Option 3: Free Up Port 8080

If you really want to use 8080:

1. 1. Find the process using the port: sudo lsof -i :8080
2. 2. Kill the process (use the correct PID): sudo kill -9 <PID>
3. 3. Retry: kubectl port-forward deployment/webapp 8080:80

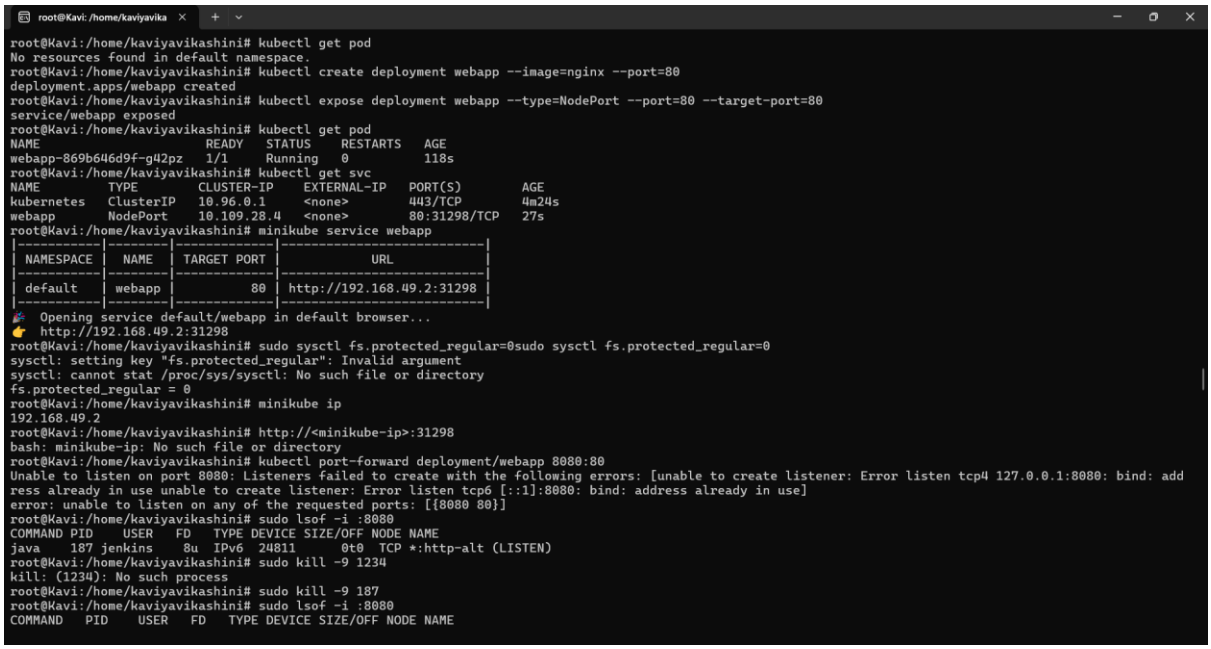
Final Output

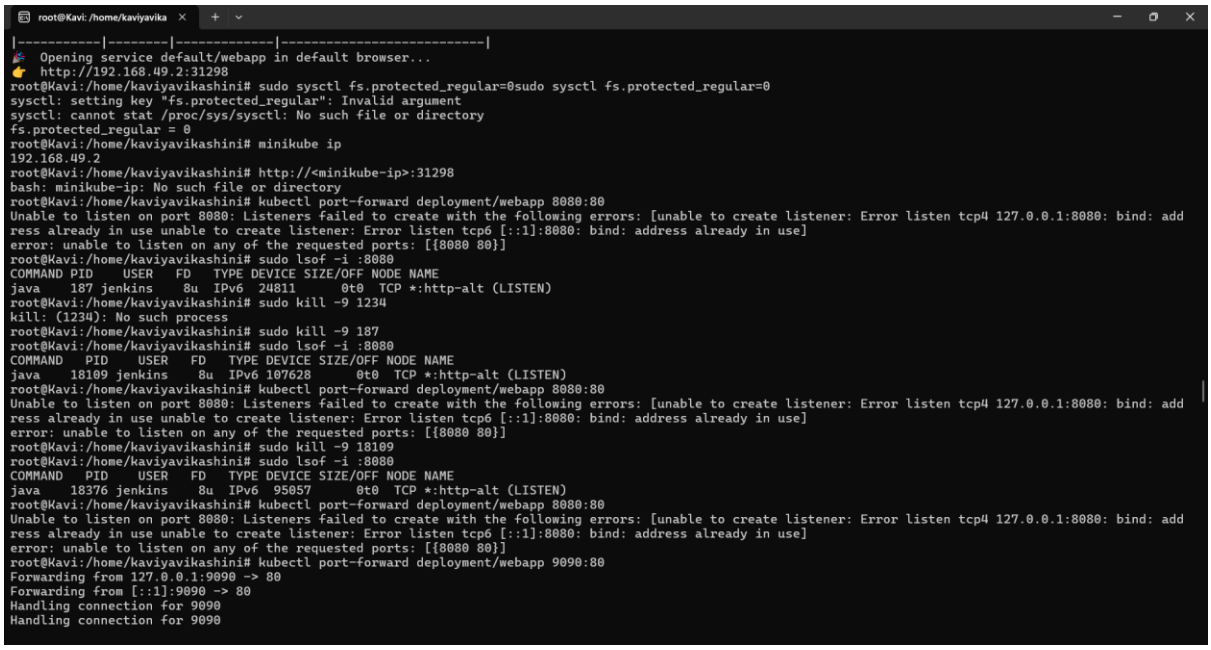
Your app is now accessible at:

- - Via Minikube NodePort → http://192.168.49.2:31298
- - Via Port-Forwarding → http://127.0.0.1:9090

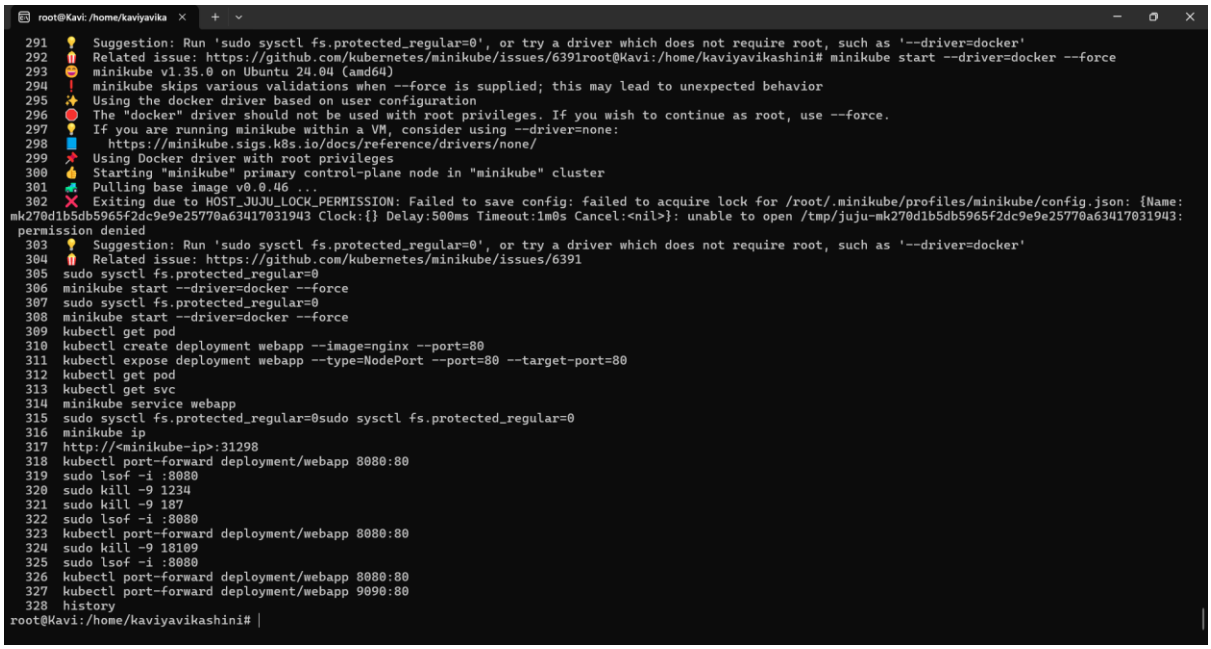
Sucessfully done , Kubernetes app is running!

SCREENSHOTS





```
root@Kavi: /home/kaviyavika
|-----------|--------|-------------|--------------------------|
🎉  Opening service default/webapp in default browser...
👉  http://192.168.49.2:31298
root@Kavi:/home/kaviyavikashini# sudo sysctl fs.protected_regular=0sudo sysctl fs.protected_regular=0
sysctl: setting key "fs.protected_regular": Invalid argument
sysctl: cannot stat /proc/sys/sysctl: No such file or directory
fs.protected_regular = 0
root@Kavi:/home/kaviyavikashini# minikube ip
192.168.49.2
root@Kavi:/home/kaviyavikashini# http://<minikube-ip>:31298
bash: minikube-ip: No such file or directory
root@Kavi:/home/kaviyavikashini# kubectl port-forward deployment/webapp 8080:80
Unable to listen on port 8080: Listeners failed to create with the following errors: [unable to create listener: Error listen tcp4 127.0.0.1:8080: bind: add
ress already in use unable to create listener: Error listen tcp6 [::1]:8080: bind: address already in use]
error: unable to listen on any of the requested ports: [{8080 80}]
root@Kavi:/home/kaviyavikashini# sudo lsof -i :8080
COMMAND PID    USER   FD   TYPE DEVICE SIZE/OFF NODE NAME
java    187 jenkins    8u  IPv6  24811      0t0  TCP *:http-alt (LISTEN)
root@Kavi:/home/kaviyavikashini# sudo kill -9 1234
kill: (1234): No such process
root@Kavi:/home/kaviyavikashini# sudo kill -9 187
root@Kavi:/home/kaviyavikashini# sudo lsof -i :8080
COMMAND   PID    USER   FD   TYPE DEVICE SIZE/OFF NODE NAME
java    18109 jenkins    8u  IPv6 107628      0t0  TCP *:http-alt (LISTEN)
root@Kavi:/home/kaviyavikashini# kubectl port-forward deployment/webapp 8080:80
Unable to listen on port 8080: Listeners failed to create with the following errors: [unable to create listener: Error listen tcp4 127.0.0.1:8080: bind: add
ress already in use unable to create listener: Error listen tcp6 [::1]:8080: bind: address already in use]
error: unable to listen on any of the requested ports: [{8080 80}]
root@Kavi:/home/kaviyavikashini# sudo kill -9 18109
root@Kavi:/home/kaviyavikashini# sudo lsof -i :8080
COMMAND   PID    USER   FD   TYPE DEVICE SIZE/OFF NODE NAME
java    18376 jenkins    8u  IPv6  95057      0t0  TCP *:http-alt (LISTEN)
root@Kavi:/home/kaviyavikashini# kubectl port-forward deployment/webapp 8080:80
Unable to listen on port 8080: Listeners failed to create with the following errors: [unable to create listener: Error listen tcp4 127.0.0.1:8080: bind: add
ress already in use unable to create listener: Error listen tcp6 [::1]:8080: bind: address already in use]
error: unable to listen on any of the requested ports: [{8080 80}]
root@Kavi:/home/kaviyavikashini# kubectl port-forward deployment/webapp 9090:80
Forwarding from 127.0.0.1:9090 -> 80
Forwarding from [::1]:9090 -> 80
Handling connection for 9090
Handling connection for 9090
```



```
root@Kavi: /home/kaviyavika
  291  💡  Suggestion: Run 'sudo sysctl fs.protected_regular=0', or try a driver which does not require root, such as '--driver=docker'
  292  🍿  Related issue: https://github.com/kubernetes/minikube/issues/6391root@Kavi:/home/kaviyavikashini# minikube start --driver=docker --force
  293  😄  minikube v1.35.0 on Ubuntu 24.04 (amd64)
  294  ❗  minikube skips various validations when --force is supplied; this may lead to unexpected behavior
  295  ✨  Using the docker driver based on user configuration
  296  🛑  The "docker" driver should not be used with root privileges. If you wish to continue as root, use --force.
  297  💡  If you are running minikube within a VM, consider using --driver=none:
  298  📘    https://minikube.sigs.k8s.io/docs/reference/drivers/none/
  299  📌  Using Docker driver with root privileges
  300  👍  Starting "minikube" primary control-plane node in "minikube" cluster
  301  🚜  Pulling base image v0.0.46 ...
  302  ❌  Exiting due to HOST_JUJU_LOCK_PERMISSION: Failed to save config: failed to acquire lock for /root/.minikube/profiles/minikube/config.json: {Name:
mk270d1b5db5965f2dc9e9e25770a63417031943 Clock:{} Delay:500ms Timeout:1m0s Cancel:<nil>}: unable to open /tmp/juju-mk270d1b5db5965f2dc9e9e25770a63417031943:
 permission denied
  303  💡  Suggestion: Run 'sudo sysctl fs.protected_regular=0', or try a driver which does not require root, such as '--driver=docker'
  304  🍿  Related issue: https://github.com/kubernetes/minikube/issues/6391
  305  sudo sysctl fs.protected_regular=0
  306  minikube start --driver=docker --force
  307  sudo sysctl fs.protected_regular=0
  308  minikube start --driver=docker --force
  309  kubectl get pod
  310  kubectl create deployment webapp --image=nginx --port=80
  311  kubectl expose deployment webapp --type=NodePort --port=80 --target-port=80
  312  kubectl get pod
  313  kubectl get svc
  314  minikube service webapp
  315  sudo sysctl fs.protected_regular=0sudo sysctl fs.protected_regular=0
  316  minikube ip
  317  http://<minikube-ip>:31298
  318  kubectl port-forward deployment/webapp 8080:80
  319  sudo lsof -i :8080
  320  sudo kill -9 1234
  321  sudo kill -9 187
  322  sudo lsof -i :8080
  323  kubectl port-forward deployment/webapp 8080:80
  324  sudo kill -9 18109
  325  sudo lsof -i :8080
  326  kubectl port-forward deployment/webapp 8080:80
  327  kubectl port-forward deployment/webapp 9090:80
  328  history
root@Kavi:/home/kaviyavikashini#
```