DEVOPS TASK 4

STEP 1: Check whether kubernetes and docker are installed in my WSL ubuntu

- Kubectl version --client
- minikube version
- docker --version

STEP 2: Start minkube by **minikube start –driver=docker**

STEP 3: The above command wont work if we are root user so switch to normal user by using **exit command.**

STEP 4: Create a deployment named `webapp` using the `nginx` image.

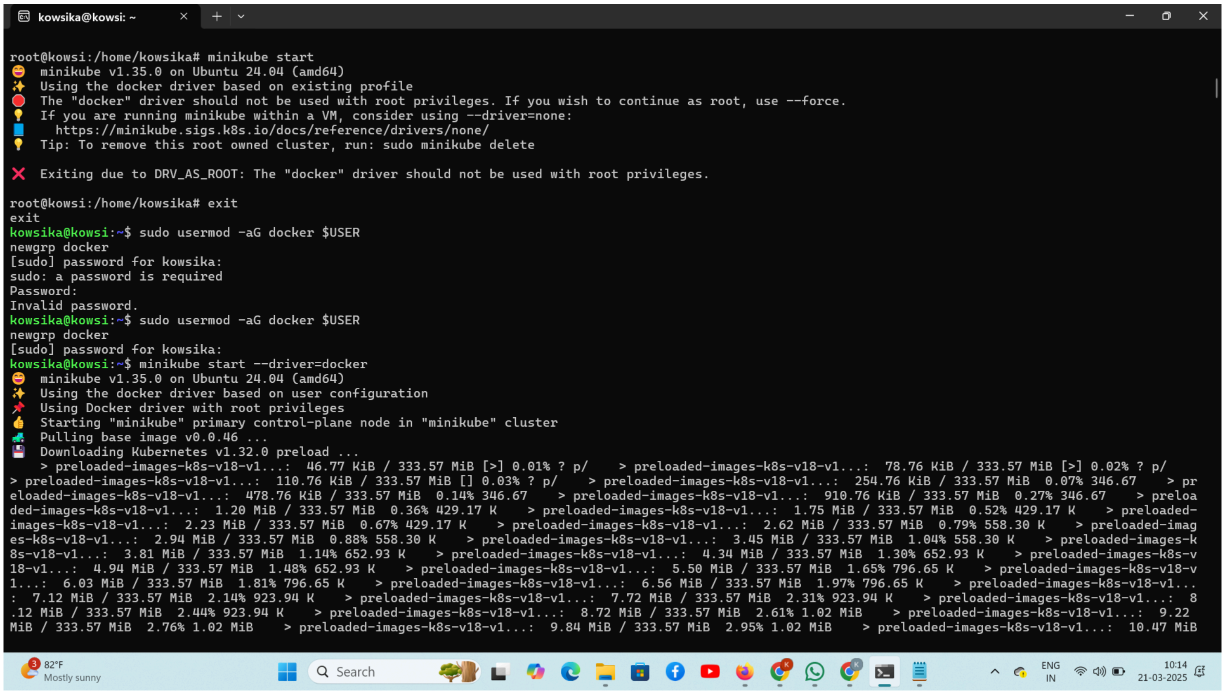
```
kubectl create deployment webapp --image=nginx --port=80
```

STEP 5: Exposes the deployment as a Kubernetes service

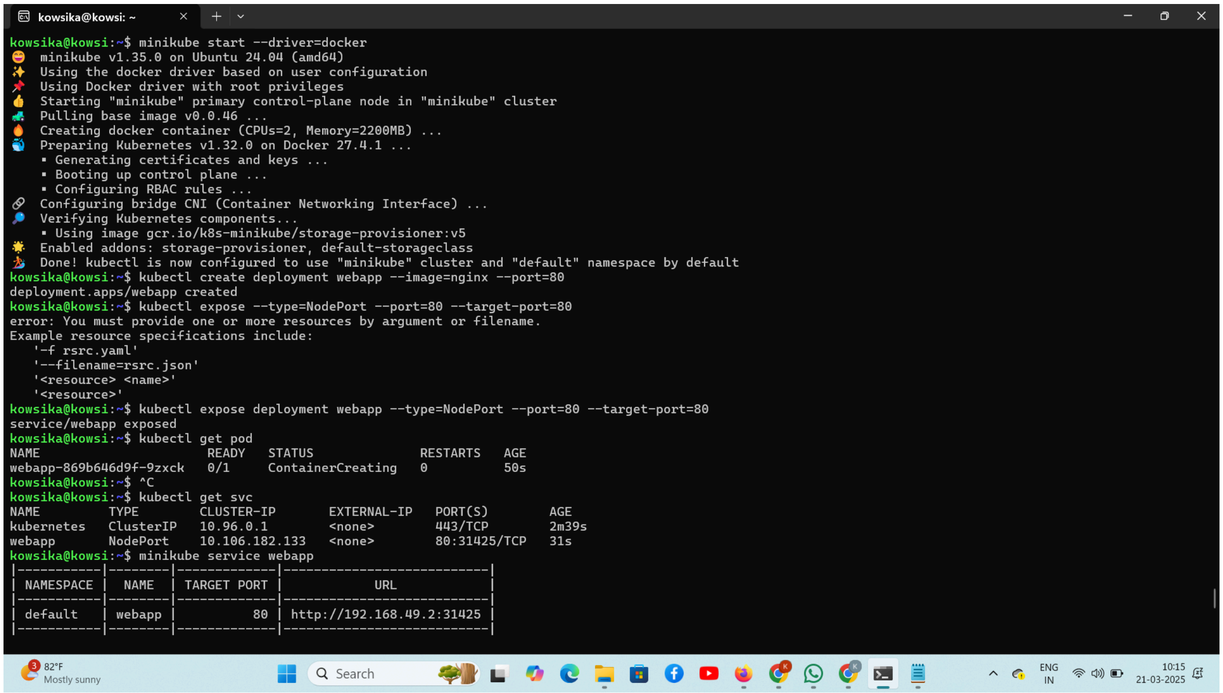
```
kubectl expose deployment webapp --type=NodePort --port=80 --target-port=80
```

STEP 6: Execute the following commands

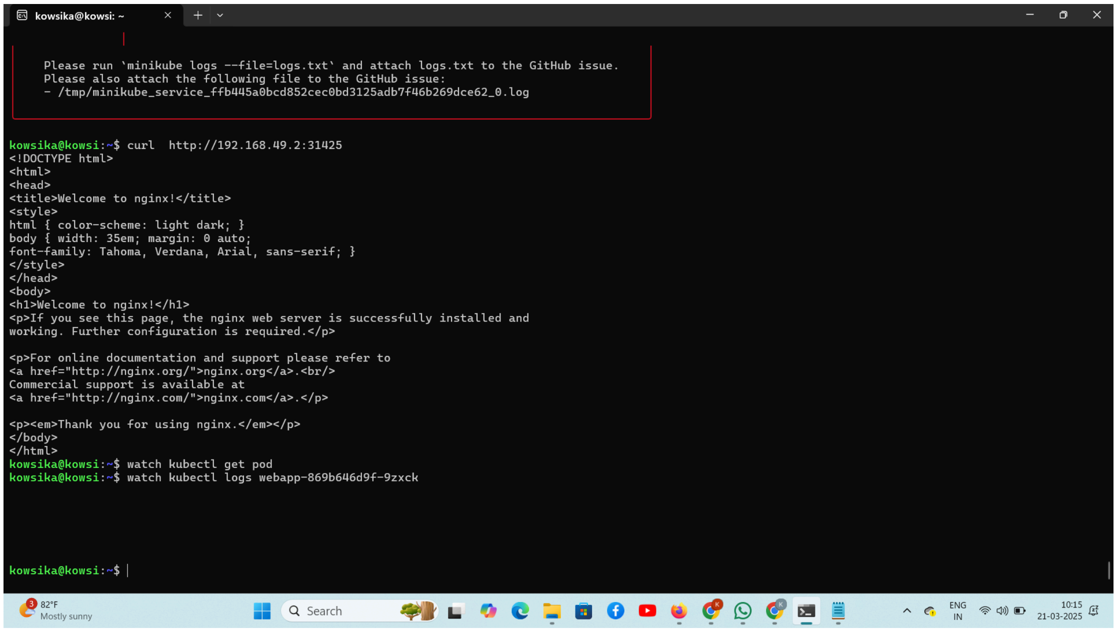
Kubectl get pod	Lists running pods
`kubectl get svc`	Lists services and their ports
`minikube service webapp`	Opens service in browser
`Curl http://<minikube-ip>:<NodePort>`	Tests if the service is accessible
`watch kubectl get pod`	Monitors pods in real-time
`watch kubectl logs <pod-name>`	Monitors logs in real-time



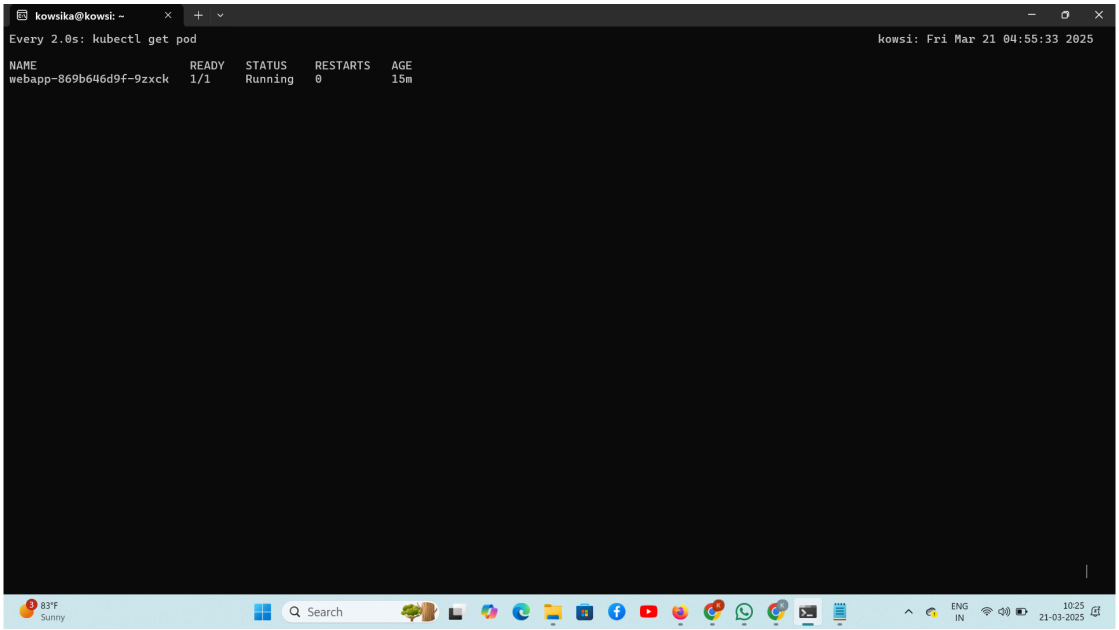
```
root@kowsi:/home/kowsika# minikube start
😄  minikube v1.35.0 on Ubuntu 24.04 (amd64)
✨  Using the docker driver based on existing profile
🛑  The "docker" driver should not be used with root privileges. If you wish to continue as root, use --force.
💡  If you are running minikube within a VM, consider using --driver=none:
📘    https://minikube.sigs.k8s.io/docs/reference/drivers/none/
💡  Tip: To remove this root owned cluster, run: sudo minikube delete

❌  Exiting due to DRV_AS_ROOT: The "docker" driver should not be used with root privileges.

root@kowsi:/home/kowsika# exit
exit
kowsika@kowsi:~$ sudo usermod -aG docker $USER
newgrp docker
[sudo] password for kowsika:
sudo: a password is required
Password:
Invalid password.
kowsika@kowsi:~$ sudo usermod -aG docker $USER
newgrp docker
[sudo] password for kowsika:
kowsika@kowsi:~$ minikube start --driver=docker
😄  minikube v1.35.0 on Ubuntu 24.04 (amd64)
✨  Using the docker driver based on user configuration
📌  Using Docker driver with root privileges
👍  Starting "minikube" primary control-plane node in "minikube" cluster
🚜  Pulling base image v0.0.46 ...
💾  Downloading Kubernetes v1.32.0 preload ...
    > preloaded-images-k8s-v18-v1...:  46.77 KiB / 333.57 MiB [>] 0.01% ? p/    > preloaded-images-k8s-v18-v1...:  78.76 KiB / 333.57 MiB [>] 0.02% ? p/
> preloaded-images-k8s-v18-v1...:  110.76 KiB / 333.57 MiB [] 0.03% ? p/    > preloaded-images-k8s-v18-v1...:  254.76 KiB / 333.57 MiB  0.07% 346.67    > pr
eloaded-images-k8s-v18-v1...:  478.76 KiB / 333.57 MiB  0.14% 346.67    > preloaded-images-k8s-v18-v1...:  910.76 KiB / 333.57 MiB  0.27% 346.67    > preloa
ded-images-k8s-v18-v1...:  1.20 MiB / 333.57 MiB  0.36% 429.17 K    > preloaded-images-k8s-v18-v1...:  1.75 MiB / 333.57 MiB  0.52% 429.17 K    > preloaded-
images-k8s-v18-v1...:  2.23 MiB / 333.57 MiB  0.67% 429.17 K    > preloaded-images-k8s-v18-v1...:  2.62 MiB / 333.57 MiB  0.79% 558.30 K    > preloaded-imag
es-k8s-v18-v1...:  2.94 MiB / 333.57 MiB  0.88% 558.30 K    > preloaded-images-k8s-v18-v1...:  3.45 MiB / 333.57 MiB  1.04% 558.30 K    > preloaded-images-k
8s-v18-v1...:  3.81 MiB / 333.57 MiB  1.14% 652.93 K    > preloaded-images-k8s-v18-v1...:  4.34 MiB / 333.57 MiB  1.30% 652.93 K    > preloaded-images-k8s-v
18-v1...:  4.94 MiB / 333.57 MiB  1.48% 652.93 K    > preloaded-images-k8s-v18-v1...:  5.50 MiB / 333.57 MiB  1.65% 796.65 K    > preloaded-images-k8s-v18-v
1...:  6.03 MiB / 333.57 MiB  1.81% 796.65 K    > preloaded-images-k8s-v18-v1...:  6.56 MiB / 333.57 MiB  1.97% 796.65 K    > preloaded-images-k8s-v18-v1...
:  7.12 MiB / 333.57 MiB  2.14% 923.94 K    > preloaded-images-k8s-v18-v1...:  7.72 MiB / 333.57 MiB  2.31% 923.94 K    > preloaded-images-k8s-v18-v1...:  8
.12 MiB / 333.57 MiB  2.44% 923.94 K    > preloaded-images-k8s-v18-v1...:  8.72 MiB / 333.57 MiB  2.61% 1.02 MiB    > preloaded-images-k8s-v18-v1...:  9.22
MiB / 333.57 MiB  2.76% 1.02 MiB    > preloaded-images-k8s-v18-v1...:  9.84 MiB / 333.57 MiB  2.95% 1.02 MiB    > preloaded-images-k8s-v18-v1...:  10.47 MiB
```



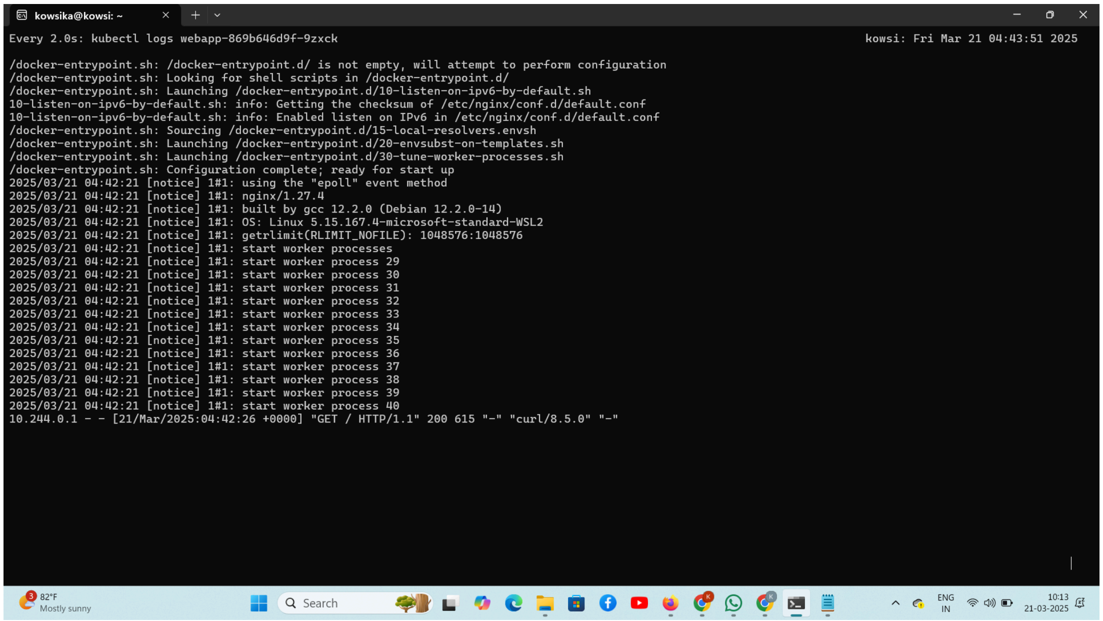
```
kowsika@kowsi:~$ minikube start --driver=docker
😄  minikube v1.35.0 on Ubuntu 24.04 (amd64)
✨  Using the docker driver based on user configuration
📌  Using Docker driver with root privileges
👍  Starting "minikube" primary control-plane node in "minikube" cluster
🚜  Pulling base image v0.0.46 ...
🔥  Creating docker container (CPUs=2, Memory=2200MB) ...
🐳  Preparing Kubernetes v1.32.0 on Docker 27.4.1 ...
    ▪ Generating certificates and keys ...
    ▪ Booting up control plane ...
    ▪ Configuring RBAC rules ...
🔗  Configuring bridge CNI (Container Networking Interface) ...
🔎  Verifying Kubernetes components...
    ▪ Using image gcr.io/k8s-minikube/storage-provisioner:v5
🌟  Enabled addons: storage-provisioner, default-storageclass
🏄  Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default
kowsika@kowsi:~$ kubectl create deployment webapp --image=nginx --port=80
deployment.apps/webapp created
kowsika@kowsi:~$ kubectl expose --type=NodePort --port=80 --target-port=80
error: You must provide one or more resources by argument or filename.
Example resource specifications include:
   '-f rsrc.yaml'
   '--filename=rsrc.json'
   '<resource> <name>'
   '<resource>'
kowsika@kowsi:~$ kubectl expose deployment webapp --type=NodePort --port=80 --target-port=80
service/webapp exposed
kowsika@kowsi:~$ kubectl get pod
NAME                     READY   STATUS              RESTARTS   AGE
webapp-869b646d9f-9zxck   0/1     ContainerCreating   0          50s
kowsika@kowsi:~$ ^C
kowsika@kowsi:~$ kubectl get svc
NAME         TYPE        CLUSTER-IP       EXTERNAL-IP   PORT(S)        AGE
kubernetes   ClusterIP   10.96.0.1        <none>        443/TCP        2m39s
webapp       NodePort    10.106.182.133   <none>        80:31425/TCP   31s
kowsika@kowsi:~$ minikube service webapp
|-----------|--------|-------------|---------------------------|
| NAMESPACE |  NAME  | TARGET PORT |            URL            |
|-----------|--------|-------------|---------------------------|
| default   | webapp |          80 | http://192.168.49.2:31425 |
|-----------|--------|-------------|---------------------------|
```



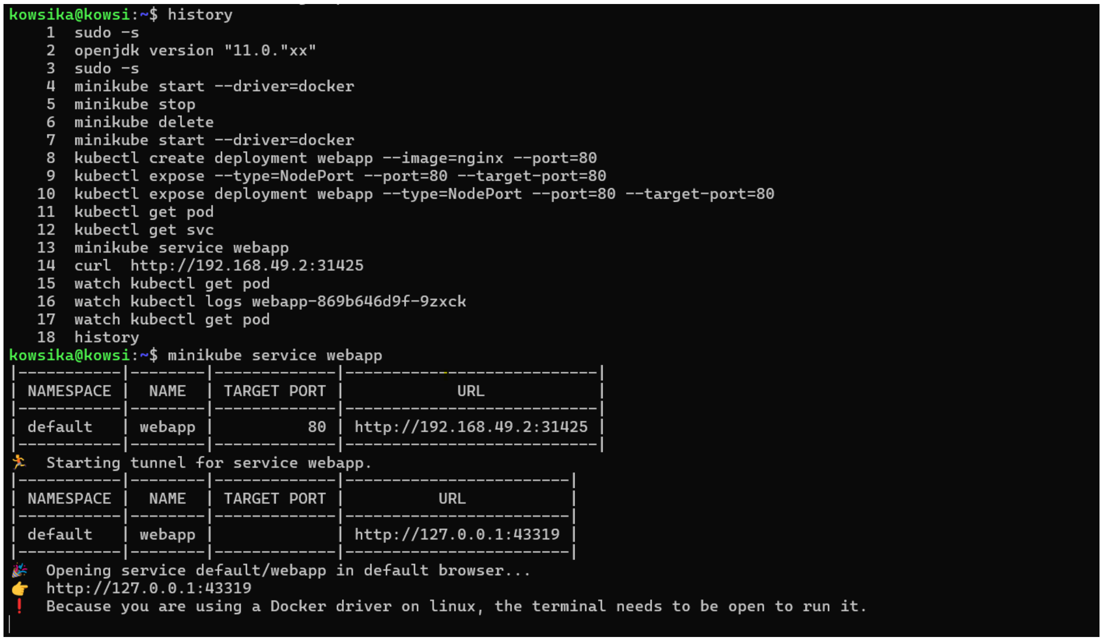
```
    Please run `minikube logs --file=logs.txt` and attach logs.txt to the GitHub issue.
    Please also attach the following file to the GitHub issue:
    - /tmp/minikube_service_ffb445a0bcd852cec0bd3125adb7f46b269dce62_0.log

kowsika@kowsi:~$ curl  http://192.168.49.2:31425
<!DOCTYPE html>
<html>
<head>
<title>Welcome to nginx!</title>
<style>
html { color-scheme: light dark; }
body { width: 35em; margin: 0 auto;
font-family: Tahoma, Verdana, Arial, sans-serif; }
</style>
</head>
<body>
<h1>Welcome to nginx!</h1>
<p>If you see this page, the nginx web server is successfully installed and
working. Further configuration is required.</p>

<p>For online documentation and support please refer to
<a href="http://nginx.org/">nginx.org</a>.<br/>
Commercial support is available at
<a href="http://nginx.com/">nginx.com</a>.</p>

<p><em>Thank you for using nginx.</em></p>
</body>
</html>
kowsika@kowsi:~$ watch kubectl get pod
kowsika@kowsi:~$ watch kubectl logs webapp-869b646d9f-9zxck






kowsika@kowsi:~$
```



```
Every 2.0s: kubectl get pod                                                 kowsi: Fri Mar 21 04:55:33 2025

NAME                        READY   STATUS    RESTARTS   AGE
webapp-869b646d9f-9zxck     1/1     Running   0          15m
```

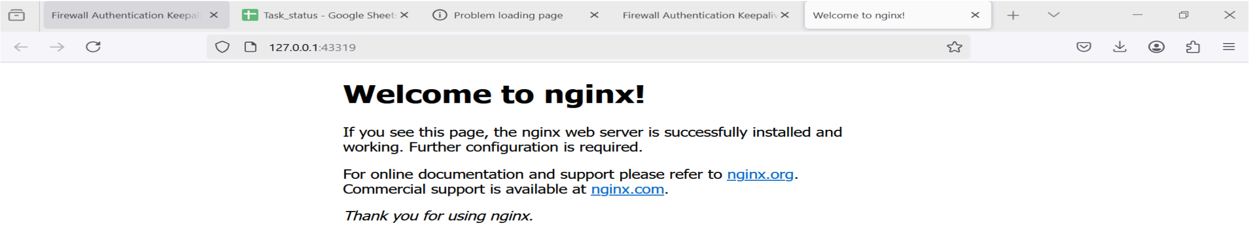


```
Every 2.0s: kubectl logs webapp-869b646d9f-9zxck                                                     kowsi: Fri Mar 21 04:43:51 2025

/docker-entrypoint.sh: /docker-entrypoint.d/ is not empty, will attempt to perform configuration
/docker-entrypoint.sh: Looking for shell scripts in /docker-entrypoint.d/
/docker-entrypoint.sh: Launching /docker-entrypoint.d/10-listen-on-ipv6-by-default.sh
10-listen-on-ipv6-by-default.sh: info: Getting the checksum of /etc/nginx/conf.d/default.conf
10-listen-on-ipv6-by-default.sh: info: Enabled listen on IPv6 in /etc/nginx/conf.d/default.conf
/docker-entrypoint.sh: Sourcing /docker-entrypoint.d/15-local-resolvers.envsh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/20-envsubst-on-templates.sh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/30-tune-worker-processes.sh
/docker-entrypoint.sh: Configuration complete; ready for start up
2025/03/21 04:42:21 [notice] 1#1: using the "epoll" event method
2025/03/21 04:42:21 [notice] 1#1: nginx/1.27.4
2025/03/21 04:42:21 [notice] 1#1: built by gcc 12.2.0 (Debian 12.2.0-14)
2025/03/21 04:42:21 [notice] 1#1: OS: Linux 5.15.167.4-microsoft-standard-WSL2
2025/03/21 04:42:21 [notice] 1#1: getrlimit(RLIMIT_NOFILE): 1048576:1048576
2025/03/21 04:42:21 [notice] 1#1: start worker processes
2025/03/21 04:42:21 [notice] 1#1: start worker process 29
2025/03/21 04:42:21 [notice] 1#1: start worker process 30
2025/03/21 04:42:21 [notice] 1#1: start worker process 31
2025/03/21 04:42:21 [notice] 1#1: start worker process 32
2025/03/21 04:42:21 [notice] 1#1: start worker process 33
2025/03/21 04:42:21 [notice] 1#1: start worker process 34
2025/03/21 04:42:21 [notice] 1#1: start worker process 35
2025/03/21 04:42:21 [notice] 1#1: start worker process 36
2025/03/21 04:42:21 [notice] 1#1: start worker process 37
2025/03/21 04:42:21 [notice] 1#1: start worker process 38
2025/03/21 04:42:21 [notice] 1#1: start worker process 39
2025/03/21 04:42:21 [notice] 1#1: start worker process 40
10.244.0.1 - - [21/Mar/2025:04:42:26 +0000] "GET / HTTP/1.1" 200 615 "-" "curl/8.5.0" "-"
```



```
kowsika@kowsi:~$ history
    1  sudo -s
    2  openjdk version "11.0."xx"
    3  sudo -s
    4  minikube start --driver=docker
    5  minikube stop
    6  minikube delete
    7  minikube start --driver=docker
    8  kubectl create deployment webapp --image=nginx --port=80
    9  kubectl expose --type=NodePort --port=80 --target-port=80
   10  kubectl expose deployment webapp --type=NodePort --port=80 --target-port=80
   11  kubectl get pod
   12  kubectl get svc
   13  minikube service webapp
   14  curl  http://192.168.49.2:31425
   15  watch kubectl get pod
   16  watch kubectl logs webapp-869b646d9f-9zxck
   17  watch kubectl get pod
   18  history
kowsika@kowsi:~$ minikube service webapp
|-----------|--------|-------------|---------------------------|
| NAMESPACE |  NAME  | TARGET PORT |            URL            |
|-----------|--------|-------------|---------------------------|
| default   | webapp |          80 | http://192.168.49.2:31425 |
|-----------|--------|-------------|---------------------------|
🏃  Starting tunnel for service webapp.
|-----------|--------|-------------|------------------------|
| NAMESPACE |  NAME  | TARGET PORT |          URL           |
|-----------|--------|-------------|------------------------|
| default   | webapp |             | http://127.0.0.1:43319 |
|-----------|--------|-------------|------------------------|
🎉  Opening service default/webapp in default browser...
👉  http://127.0.0.1:43319
❗  Because you are using a Docker driver on linux, the terminal needs to be open to run it.
```

STEP 7: If `nginx` is running correctly, you should get the default `nginx` welcome page as HTML.



Firewall Authentication Keepal
Task_status - Google Sheet
Problem loading page
Firewall Authentication Keepali
Welcome to nginx!
127.0.0.1:43319

Welcome to nginx!

If you see this page, the nginx web server is successfully installed and working. Further configuration is required.

For online documentation and support please refer to nginx.org.
Commercial support is available at nginx.com.

Thank you for using nginx.