KUBERNETES ZERO TO HERO APPLICATION

cd /mnt/c/users/hafsa/downloads
mv fixed-k8s.sh ~
mv minikube-reset-script.sh ~
./ fixed-k8s.sh
cd /home/hafsa_027/k8s-master-app
./scripts/deploy.sh
cd /mnt/c/users/hafsa/downloads
mv deploy-no-validate.sh /k8s-master-app/scripts
./deploy-no-validate.sh
./scripts/deploy.sh

IsADirectoryError: [Errno 21] Is a directory: '/logs'
FIX IT:-
If LOG_PATH is set (/logs), it appends 'app.log', resulting in /logs/app.log

code .
minikube service k8s-master-app -n k8s-demo(open the link in the browser)

FLOWCHART of deploy.sh:-

Start
| 1
Check prerequisites
(minikube, kubectl, docker installed)
| 2
Start Minikube (if not running)
minikube status,
minikube start --cpus=2 --memory=4096 --disk-size=20g
minikube start --driver=docker

| 3

Enable Addons (dashboard [img1])

| 4

Configure Docker eval $(minikube docker-env)

| 5

Build Docker Image

docker build --network=host -t k8s-master-app:latest .

| 6

Apply Kubernetes manifests

Namespace Creation: kubectl apply -f k8s/base/namespace.yaml
ConfigMap and Volume Setup**:**kubectl apply -f k8s/volumes/volumes.yaml
Application Settings ConfigMap**:**kubectl apply -f k8s/config/configmap.yaml
Secrets Management:kubectl apply -f k8s/config/secret.yaml
Deployment Creation:kubectl apply -f k8s/base/deployment.yaml
Service Exposure**:**kubectl apply -f k8s/networking/service.yaml
Horizontal Pod Autoscaler (HPA)**:**kubectl apply -f k8s/monitoring/hpa.yaml

| 7

Wait for Deploy (check rollout)

kubectl -n k8s-demo get pods
kubectl -n k8s-demo rollout status deployment/k8s-master-app --timeout=180s

| 8

Setup Port Forward

|

pgrep -f "kubectl.*port-forward.*k8s-demo" > /dev/null
pkill -f "kubectl.*port-forward.*k8s-demo"
kubectl -n k8s-demo port-forward svc/k8s-master-app 8080:80 &

Show Access URLs

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✅ **Method 1**: Port Forwarding
http://localhost:8080
✅ **Method 2:** NodePort (Minikube)
MINIKUBE_IP=$(minikube ip)
“ http://$MINIKUBE_IP:30080"

✅ **Method 3**: Minikube Service URL

minikube service k8s-master-app -n k8s-demo

Show Useful Cmds

| 10

minikube dashboard # Open the Kubernetes dashboard in the browser

kubectl -n k8s-demo logs -l app=k8s-master # View logs of pods with label

kubectl -n k8s-demo get pods -l app=k8s-master -o name | head -1) -- /bin/bash # Get a shell into a pod

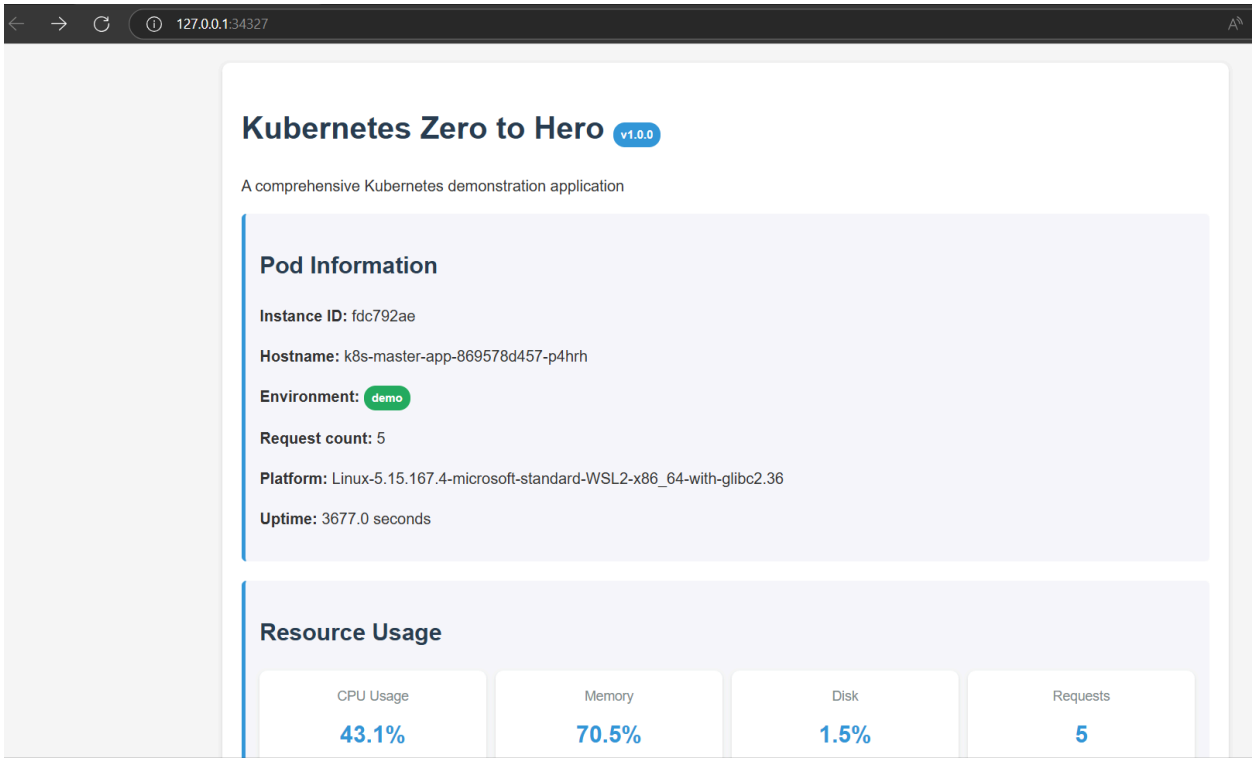
kubectl -n k8s-demo get all # View all resources in the k8s-demo namespace

kubectl -n k8s-demo top pods # Check pod resource usage (if metrics-server is enabled)

./scripts/cleanup.sh # Run cleanup script to remove all resources

|

Success ✅



Mounted Volumes

Data Volume

Path: /data

Status: Successfully mounted

Files:

hello.txt	View
info.txt	View
firstexample.txt	View
sample-config.txt	View

Config Volume

Path: /config

Status: Mounted but empty

Logs Volume

Logs Volume

Path: /logs

Status: Successfully mounted

Files:

init.log	View
app.log	View
container.log	View
file_operations.log	View

Actions

Create a File | API Info | Health Check | Metrics

Environment Variables

APP_NAME: Kubernetes Zero to Hero

APP_VERSION: 1.0.0

ENVIRONMENT: demo

DATA_PATH: /data

CONFIG_PATH: /config

LOG_PATH: /logs

SECRET_KEY: dev-sec...

```
hafsa_027@Dell:~$ minikube addons list
|-----------------------------|----------|--------------|--------------------------------|
|         ADDON NAME          | PROFILE  |    STATUS    |           MAINTAINER           |
|-----------------------------|----------|--------------|--------------------------------|
| ambassador                  | minikube | disabled     | 3rd party (Ambassador)         |
| amd-gpu-device-plugin       | minikube | disabled     | 3rd party (AMD)                |
| auto-pause                  | minikube | disabled     | minikube                       |
| cloud-spanner               | minikube | disabled     | Google                         |
| csi-hostpath-driver         | minikube | disabled     | Kubernetes                     |
| dashboard                   | minikube | enabled ✅   | Kubernetes                     |
| default-storageclass        | minikube | enabled ✅   | Kubernetes                     |
| efk                         | minikube | disabled     | 3rd party (Elastic)            |
| freshpod                    | minikube | disabled     | Google                         |
| gcp-auth                    | minikube | disabled     | Google                         |
| gvisor                      | minikube | disabled     | minikube                       |
```

```
hafsa_027@Dell:~$ minikube docker-env
export DOCKER_TLS_VERIFY="1"
export DOCKER_HOST="tcp://127.0.0.1:32774"
export DOCKER_CERT_PATH="/home/hafsa_027/.minikube/certs"
export MINIKUBE_ACTIVE_DOCKERD="minikube"

# To point your shell to minikube's docker-daemon, run:
# eval $(minikube -p minikube docker-env)
```