Kubernetes Dashboard & CLI for Cluster Monitoring

Step 1: Start Minikube with resources

```
minikube start --cpus=2 --memory=4096
```

Step 2: Open Kubernetes Dashboard

```
minikube dashboard
```

Step 3: Create Deployment YAML

```
nano deployment.yaml
```

```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: nginx-deployment
spec:
  replicas: 2
  selector:
    matchLabels:
      app: nginx
  template:
    metadata:
      labels:
        app: nginx
    spec:
      containers:
      - name: nginx
        image: nginx
        ports:
        - containerPort: 80
```

Step 4: Create Service YAML

```
nano service.yaml
```

```
apiVersion: v1
kind: Service
```

```
metadata:
  name: nginx-service
spec:
  selector:
    app: nginx
  ports:
  - port: 80
    targetPort: 80
  type: NodePort
```

Step 5: Apply Deployment & Service

```
kubectl apply -f deployment.yaml
kubectl apply -f service.yaml
```

Step 6: Monitor using CLI

```
kubectl get pods
kubectl get nodes
kubectl get svc
kubectl logs <pod-name>
kubectl describe pod <pod-name>
```

Step 7: Access Application

```
minikube service nginx-service
```

Step 8: Cleanup

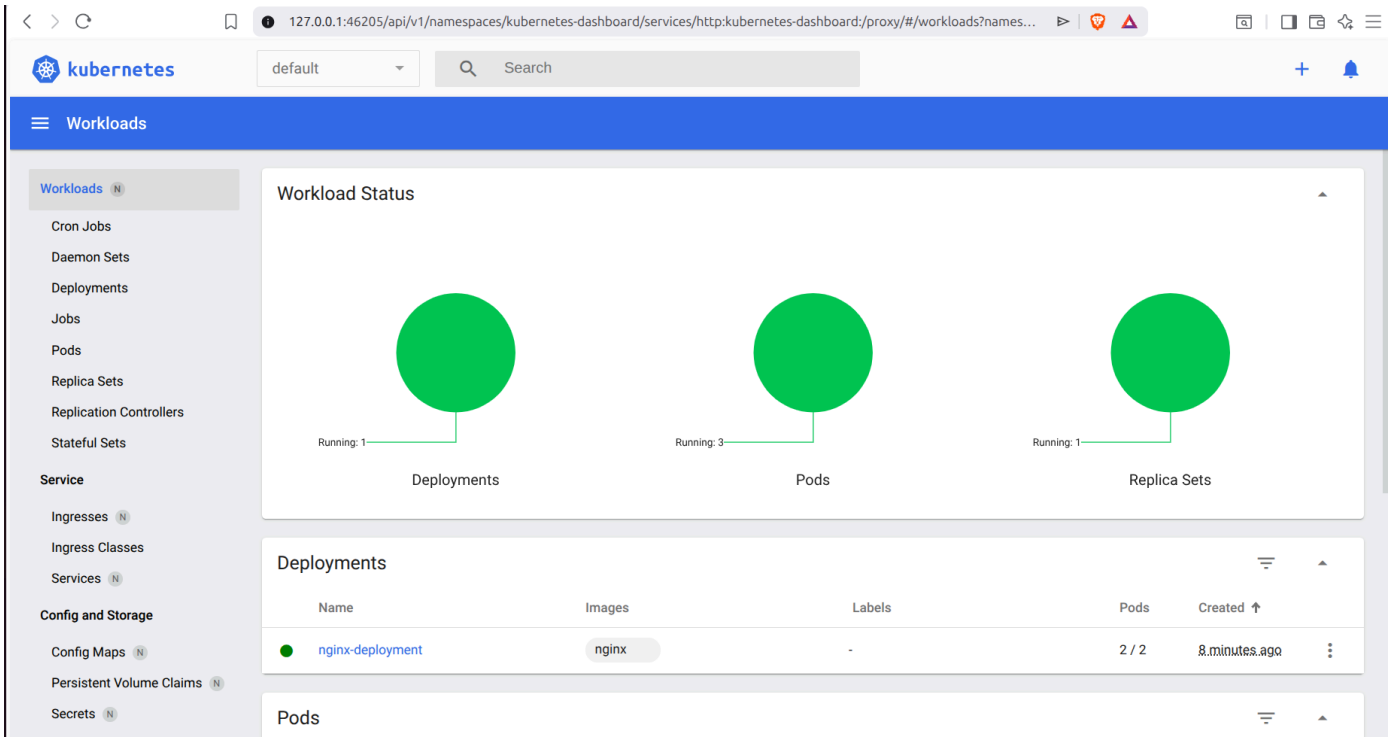
```
kubectl delete deployments --all
kubectl delete svc --all
```

```
abhishek@Abhishek-Ubuntu:~$ minikube start --cpus=2 --memory=4096
😄  minikube v1.37.0 on Ubuntu 24.04
✨  Using the docker driver based on existing profile
❗  You cannot change the memory size for an existing minikube cluster. Please first delete the cluster.
👍  Starting "minikube" primary control-plane node in "minikube" cluster
🚜  Pulling base image v0.0.48 ...
🏃  Updating the running docker "minikube" container ...
🐳  Preparing Kubernetes v1.34.0 on Docker 28.4.0 ...
🔎  Verifying Kubernetes components...
    ▪ Using image gcr.io/k8s-minikube/storage-provisioner:v5
🌟  Enabled addons: default-storageclass, storage-provisioner
🏄  Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default
abhishek@Abhishek-Ubuntu:~$ minikube dashboard
\🔌  Enabling dashboard ...
    ▪ Using image docker.io/kubernetesui/dashboard:v2.7.0
    ▪ Using image docker.io/kubernetesui/metrics-scraper:v1.0.8
💡  Some dashboard features require the metrics-server addon. To enable all features please run:

        minikube addons enable metrics-server

🤔  Verifying dashboard health ...
🚀  Launching proxy ...
🤔  Verifying proxy health ...
🎉  Opening http://127.0.0.1:45017/api/v1/namespaces/kubernetes-dashboard/services/http:kubernetes-dashboard:/proxy/ in your default browser...
Opening in existing browser session.
^C
abhishek@Abhishek-Ubuntu:~$ nano deployment.yaml
abhishek@Abhishek-Ubuntu:~$ nano service.yaml
abhishek@Abhishek-Ubuntu:~$ kubectl apply -f deployment.yaml
deployment.apps/nginx-deployment created
abhishek@Abhishek-Ubuntu:~$ kubectl apply -f service.yaml
service/nginx-service created
abhishek@Abhishek-Ubuntu:~$ kubectl get pods
```

```
🚀  Launching proxy ...
🤔  Verifying proxy health ...
🎉  Opening http://127.0.0.1:45017/api/v1/namespaces/kubernetes-dashboard/services/http:kubernetes-dashboard:/proxy/ in your default browser...
Opening in existing browser session.
^C
abhishek@Abhishek-Ubuntu:~$ nano deployment.yaml
abhishek@Abhishek-Ubuntu:~$ nano service.yaml
abhishek@Abhishek-Ubuntu:~$ kubectl apply -f deployment.yaml
deployment.apps/nginx-deployment created
abhishek@Abhishek-Ubuntu:~$ kubectl apply -f service.yaml
service/nginx-service created
abhishek@Abhishek-Ubuntu:~$ kubectl get pods
NAME                                READY   STATUS    RESTARTS        AGE
nginx-deployment-7ccccd94f7-25b4h   1/1     Running   0               19s
nginx-deployment-7ccccd94f7-v2f9b   1/1     Running   0               19s
program-8                           1/1     Running   1 (3m18s ago)   9m5s
abhishek@Abhishek-Ubuntu:~$ kubectl get svc
NAME            TYPE        CLUSTER-IP    EXTERNAL-IP   PORT(S)        AGE
kubernetes      ClusterIP   10.96.0.1     <none>        443/TCP        6d23h
nginx-service   NodePort    10.97.120.9   <none>        80:32290/TCP   16s
abhishek@Abhishek-Ubuntu:~$ kubectl get nodes
NAME       STATUS   ROLES           AGE   VERSION
minikube   Ready    control-plane   23d   v1.34.0
abhishek@Abhishek-Ubuntu:~$ kubectl logs program-8
abhishek@Abhishek-Ubuntu:~$ minikube service nginx-service
```

NAMESPACE	NAME	TARGET PORT	URL
default	nginx-service	80	http://192.168.49.2:32290

```
🎉  Opening service default/nginx-service in default browser...
abhishek@Abhishek-Ubuntu:~$ Opening in existing browser session.
```


127.0.0.1:46205/api/v1/namespaces/kubernetes-dashboard/services/http:kubernetes-dashboard:/proxy/#/workloads?names...
kubernetes
default
Search
Workloads
Workloads
Cron Jobs
Daemon Sets
Deployments
Jobs
Pods
Replica Sets
Replication Controllers
Stateful Sets
Service
Ingresses
Ingress Classes
Services
Config and Storage
Config Maps
Persistent Volume Claims
Secrets
Workload Status
Running: 1
Deployments
Running: 3
Pods
Running: 1
Replica Sets
Deployments
Name
Images
Labels
Pods
Created
nginx-deployment
nginx
-
2 / 2
8 minutes ago
Pods