K8s Lab 3

1.

```
[mosama@localhost ~]$ kubectl get daemonset --all-namespaces
NAMESPACE     NAME         DESIRED   CURRENT   READY   UP-TO-DATE   AVAILABLE   NODE SELECTOR            AGE
kube-system   kube-proxy   1         1         1       1            1           kubernetes.io/os=linux   2d4h
```

2. Only the Kube-proxy daemon set exist

3.

```
Pod Template:
  Labels:           k8s-app=kube-proxy
  Service Account:  kube-proxy
  Containers:
   kube-proxy:
    Image:      registry.k8s.io/kube-proxy:v1.31.0
```

It uses kube-proxy image from k8s registry

4.

```
[mosama@localhost ~]$ kubectl apply -f fluentd-daemonset.yaml
daemonset.apps/elasticsearch created
[mosama@localhost ~]$
```

```yaml
apiVersion: apps/v1
kind: DaemonSet
metadata:
  name: elasticsearch
  namespace: kube-system
spec:
  selector:
    matchLabels:
      name: elasticsearch
  template:
    metadata:
      labels:
        name: elasticsearch
    spec:
      containers:
      - name: fluentd-elasticsearch
        image: k8s.gcr.io/fluentd-elasticsearch:1.20
```

5.

```
[mosama@localhost ~]$ kubectl run nginx-pod --image=nginx:alpine --labels=tier=backend
pod/nginx-pod created
```

6.

```
[mosama@localhost ~]$ kubectl run test --image=nginx:alpine
pod/test created
```

7.

```
[mosama@localhost ~]$ kubectl expose pod nginx-pod --name=backend-service --port=80 --target-port=80 --type=ClusterIP
service/backend-service exposed
[mosama@localhost ~]$
```

8.

```
[mosama@localhost ~]$ kubectl exec -it test -- /bin/sh
/ # curl backend-service
<!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>
/ #
```

It responded with the nginx webpage

9.

```
[mosama@localhost ~]$ kubectl create deployment web-app --image=nginx --replicas=2
deployment.apps/web-app created
[mosama@localhost ~]$
```

10.

```
apiVersion: v1
kind: Service
metadata:
  name: web-app-service
  namespace: default  # Change this if your deployment is in a different namespace
spec:
  type: NodePort
  ports:
    - port: 80
      targetPort: 80
      nodePort: 30082
  selector:
    app: web-app  # Ensure this label matches your deployment's labels
~
```

```
[mosama@localhost ~]$ kubectl apply -f web-app-service.yaml
service/web-app-service unchanged
```

11.

```
[mosama@localhost ~]$ kubectl get nodes -o wide
NAME       STATUS   ROLES           AGE    VERSION   INTERNAL-IP    EXTERNAL-IP   OS-IMAGE             KERNEL-VERSION                 CONTAINER-RUNTIME
minikube   Ready    control-plane   2d5h   v1.31.0   192.168.49.2   <none>        Ubuntu 22.04.4 LTS   5.14.0-427.37.1.el9_4.x86_64   docker://27.2.0
[mosama@localhost ~]$ curl 192.168.49.2:30082
<!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>
[mosama@localhost ~]$
```

12.

```
[mosama@localhost ~]$ docker exec -it minikube /bin/sh
# ls /etc/kubernetes/manifests
etcd.yaml  kube-apiserver.yaml  kube-controller-manager.yaml  kube-scheduler.yaml
```

They are 4 static pods

13. They are created on the minikube master node