Q4) To install Kubectl and execute kubectl commands to manage clusters and deploy your first Kubernetes application (Apache)

Cluster-info: Displays information about the Kubernetes control plane and service endpoints.

```
PS C:\Users\Rishabh> kubectl cluster-info
Kubernetes control plane is running at https://kubernetes.docker.internal:6443
CoreDNS is running at https://kubernetes.docker.internal:6443/api/v1/namespaces/kube-system/services/kube-dns:dns/proxy

To further debug and diagnose cluster problems, use 'kubectl cluster-info dump'.
```

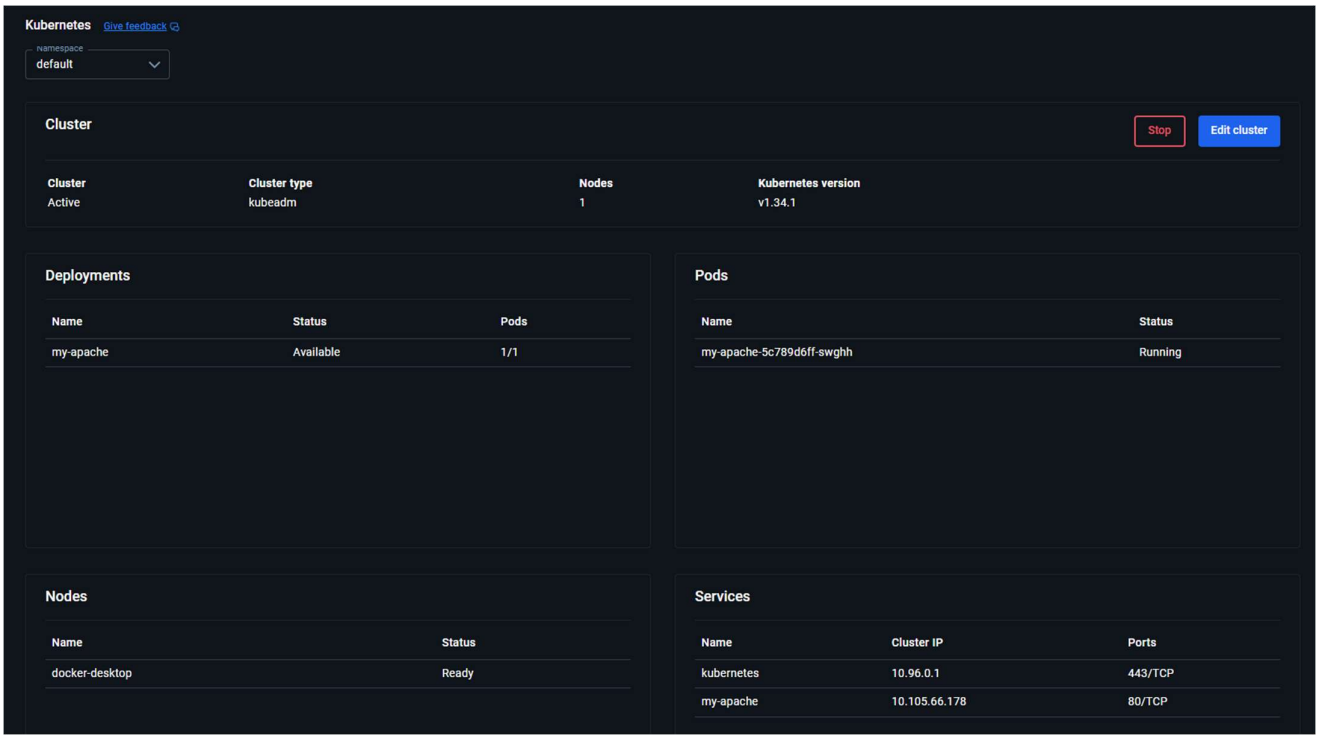
Get nodes: Lists all the nodes in the Kubernetes cluster with their status.

```
PS C:\Users\Rishabh> kubectl get nodes
NAME             STATUS   ROLES           AGE    VERSION
docker-desktop   Ready    control-plane   113m   v1.34.1
```

Create deployment: Creates a deployment named my-apache using the Apache (httpd) Docker image.

```
PS C:\Users\Rishabh> kubectl create deployment my-apache --image=httpd
deployment.apps/my-apache created
```

In the Kubernetes section of **Docker**, click the **create cluster** button and then select **kubeadm** option



Get deployments: Shows all current deployments running in the cluster.

```
PS C:\Users\Rishabh> kubectl get deployments
NAME        READY   UP-TO-DATE   AVAILABLE   AGE
my-apache   0/1     1            0           13s
```

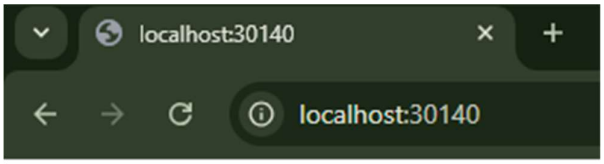
Expose: Exposes the my-apache deployment externally through a NodePort service on port 80.

```
PS C:\Users\Rishabh> kubectl expose deployment my-apache --type=NodePort --port=80
service/my-apache exposed
```

Get svc: Lists all active services and their assigned ports for external access.

```
PS C:\Users\Rishabh> kubectl get svc
NAME         TYPE        CLUSTER-IP      EXTERNAL-IP   PORT(S)        AGE
kubernetes   ClusterIP   10.96.0.1       <none>        443/TCP        115m
my-apache    NodePort    10.105.66.178   <none>        80:30140/TCP   13s
```

Copy the highlighted part and paste it in the browser as (localhost:highlighted_part)



It works!