Deploying A Web Application on a Local Kubernetes Cluster
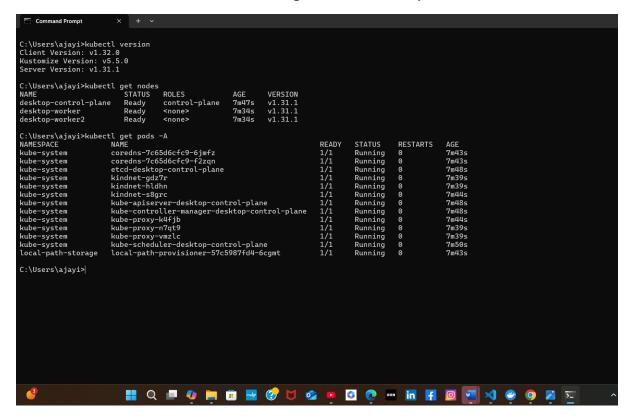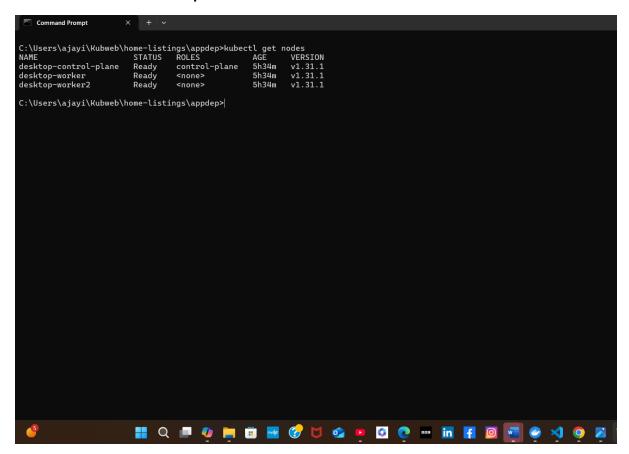
Deployment Artifacts

Ensure Kubernetes is Enabled and Running in Docker Desktop

Kubernetes Docker Desktop 3—Node Cluster


```
C:\Users\ajayi\Kubweb\home-listings\appdep>kubectl get nodes
NAME                   STATUS   ROLES           AGE      VERSION
desktop-control-plane  Ready    control-plane   5h34m    v1.31.1
desktop-worker         Ready    <none>          5h34m    v1.31.1
desktop-worker2        Ready    <none>          5h34m    v1.31.1

C:\Users\ajayi\Kubweb\home-listings\appdep>
```

Nginx Deployment with 3 Replicas


```
C:\Users\ajayi\Kubweb\home-listings\appdep>kubectl get deploy nginx-web
NAME        READY   UP-TO-DATE   AVAILABLE   AGE
nginx-web   3/3     3            3           3h37m

C:\Users\ajayi\Kubweb\home-listings\appdep>
```

Pods in the Deployment

```
C:\Users\ajayi\Kubweb\home-listings\appdep>kubectl get deploy nginx-web
NAME        READY   UP-TO-DATE   AVAILABLE   AGE
nginx-web   3/3     3            3           3h37m

C:\Users\ajayi\Kubweb\home-listings\appdep>kubectl get pods
NAME                          READY   STATUS    RESTARTS   AGE
nginx-web-7fc866b88f-f6hvd    1/1     Running   0          3h40m
nginx-web-7fc866b88f-fpml5    1/1     Running   0          3h40m
nginx-web-7fc866b88f-x8tfc    1/1     Running   0          3h40m

C:\Users\ajayi\Kubweb\home-listings\appdep>
```

Created NodePort Service

```
C:\Users\ajayi\Kubweb\home-listings\appdep>kubectl get svc
NAME            TYPE        CLUSTER-IP     EXTERNAL-IP   PORT(S)        AGE
kubernetes      ClusterIP   10.96.0.1      <none>        443/TCP        4h35m
nginx-service   NodePort    10.96.138.10   <none>        80:31693/TCP   3h41m

C:\Users\ajayi\Kubweb\home-listings\appdep>kubectl describe svc nginx-service
Name:                     nginx-service
Namespace:                default
Labels:                   app=nginx-web
Annotations:              <none>
Selector:                 app=nginx-web
Type:                     NodePort
IP Family Policy:         SingleStack
IP Families:              IPv4
IP:                       10.96.138.10
IPs:                      10.96.138.10
Port:                     <unset>  80/TCP
TargetPort:               80/TCP
NodePort:                 <unset>  31693/TCP
Endpoints:                10.244.1.9:80,10.244.2.10:80,10.244.2.11:80
Session Affinity:         None
External Traffic Policy:  Cluster
Internal Traffic Policy:  Cluster
Events:                   <none>

C:\Users\ajayi\Kubweb\home-listings\appdep>
```

Web browser access of Application (Port forwarding used on 31693)