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D15B/08

Practical No 3

install minikube and run following command

minikube version

Start minikube cluster :minikube start --driver=docker

```
PS C:\WINDOWS\system32> minikube version
minikube version: v1.34.0
commit: 210b148df93a80eb872ecbeb7e35281b3c582c61
PS C:\WINDOWS\system32> minikube start --driver=docker
* minikube v1.34.0 on Microsoft Windows 11 Pro 10.0.22631.4169 Build 22631.4169
* Using the docker driver based on existing profile
* Starting "minikube" primary control-plane node in "minikube" cluster
* Pulling base image v0.0.45 ...
* Updating the running docker "minikube" container ...
! Failing to connect to https://registry.k8s.io/ from both inside the minikube container and host machine
* To pull new external images, you may need to configure a proxy: https://minikube.sigs.k8s.io/docs/reference/networking/proxy/
* Preparing Kubernetes v1.31.0 on Docker 27.2.0 ...
* Verifying Kubernetes components...
  - Using image docker.io/kubernetesui/dashboard:v2.7.0
  - Using image docker.io/kubernetesui/metrics-scraper:v1.0.8
  - Using image gcr.io/k8s-minikube/storage-provisioner:v5
* Some dashboard features require the metrics-server addon. To enable all features please run:

        minikube addons enable metrics-server

* Enabled addons: storage-provisioner, dashboard, default-storageclass

! C:\Program Files\Docker\Docker\resources\bin\kubectl.exe is version 1.29.2, which may have incompatibilities with Kubernetes 1.31.0.
  - Want kubectl v1.31.0? Try 'minikube kubectl -- get pods -A'
* Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default
```

Verify Minikube status

minikube status

install kubectl

curl -LO "https://storage.googleapis.com/kubernetes-release/release/$(curl -s https://storage.googleapis.com/kubernetes-release/release/stable.txt)/bin/windows/amd64/kubectl.exe"

Verify installation

kubectl version --client

Deploy an Application on Kubernetes

create a Deployment

kubectl create deployment nginx --image=nginx

Expose the Deployment

kubectl expose deployment nginx --type=NodePort --port=80

```
Administrator: Windows PowerShell
PS C:\WINDOWS\system32> minikube status
minikube
type: Control Plane
host: Running
kubelet: Running
apiserver: Running
kubeconfig: Configured

PS C:\WINDOWS\system32> kubectl version --client
Client Version: v1.29.2
Kustomize Version: v5.0.4-0.20230601165947-6ce0bf390ce3
PS C:\WINDOWS\system32> kubectl create deployment nginx --image=nginx
deployment.apps/nginx created
PS C:\WINDOWS\system32> kubectl expose deployment nginx --type=NodePort --port=80
service/nginx exposed
```

Get the URL

minikube service nginx --url

Manage Kubernetes Cluster

To see running pods: kubectl get pods

To check services:kubectl get services

```
PS C:\WINDOWS\system32> minikube service nginx --url
E1013 03:23:35.337908   11528 service_tunnel.go:66] error starting ssh tunnel: exec: "ssh": executable file not found in %PATH%
http://127.0.0.1:62356
! Because you are using a Docker driver on windows, the terminal needs to be open to run it.
PS C:\WINDOWS\system32> minikube status
minikube
type: Control Plane
host: Running
kubelet: Running
apiserver: Running
kubeconfig: Configured

PS C:\WINDOWS\system32> kubectl get services
NAME         TYPE        CLUSTER-IP    EXTERNAL-IP   PORT(S)        AGE
kubernetes   ClusterIP   10.96.0.1     <none>        443/TCP        5m45s
nginx        NodePort    10.100.9.32   <none>        80:32598/TCP   4m15s
PS C:\WINDOWS\system32> kubectl get pods
NAME                     READY   STATUS    RESTARTS   AGE
nginx-676b6c5bbc-bch7t   1/1     Running   0          4m38s
PS C:\WINDOWS\system32> kubectl port-forward service/nginx 8080:80
Unable to listen on port 8080: Listeners failed to create with the following errors: [unable to create listener: Error listen tcp4 127.0.0.1:8080: bind: An attempt was
made to access a socket in a way forbidden by its access permissions. unable to create listener: Error listen tcp6 [::1]:8080: bind: An attempt was made to access a soc
ket in a way forbidden by its access permissions.]
error: unable to listen on any of the requested ports: [{8080 80}]
PS C:\WINDOWS\system32> kubectl port-forward service/nginx 8081:80
Forwarding from 127.0.0.1:8081 -> 80
Forwarding from [::1]:8081 -> 80
Handling connection for 8081
Handling connection for 8081
```

Navigate to localhost