TASK 3-Minikube Deployment Task

Step 1: Start Minikube

Start the Minikube cluster using the following command:

minikube start

```
vboxuser@Ubuntu:~$ minikube start
😄  minikube v1.35.0 on Ubuntu 24.04 (vbox/amd64)
✨  Automatically selected the docker driver. Other choices: none, ssh
📌  Using Docker driver with root privileges
👍  Starting "minikube" primary control-plane node in "minikube" cluster
🚜  Pulling base image v0.0.46 ...
💾  Downloading Kubernetes v1.32.0 preload ...
    > preloaded-images-k8s-v18-v1...:  333.57 MiB / 333.57 MiB  100.00% 3.10 Mi
    > gcr.io/k8s-minikube/kicbase...:  498.81 MiB / 500.31 MiB  99.70% 3.89 MiB
🔥  Creating docker container (CPUs=2, Memory=2200MB) ...
🐳  Preparing Kubernetes v1.32.0 on Docker 27.4.1 ...
    ▪ Generating certificates and keys ...
    ▪ Booting up control plane ...
    ▪ Configuring RBAC rules ...
🔗  Configuring bridge CNI (Container Networking Interface) ...
🔎  Verifying Kubernetes components...
    ▪ Using image gcr.io/k8s-minikube/storage-provisioner:v5
🌟  Enabled addons: storage-provisioner, default-storageclass
🏄  Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default
```

This initializes the Minikube cluster using Docker as the driver.

Step 2: Install Kubectl

Since Kubectl is not found, install it with the following command:

sudo snap install kubectl --classic

Alternatively, you can download it using curl:

```
vboxuser@Ubuntu:~$    curl -LO "https://dl.k8s.io/release/$(curl -L -s https://dl.k8s.io/release/stable.txt)/bin/linux/amd64/kubectl.sha256"
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100   138  100   138    0     0    235      0 --:--:-- --:--:-- --:--:--   235
100    64  100    64    0     0     80      0 --:--:-- --:--:-- --:--:--    80
```

curl -LO "https://dl.k8s.io/release/$(curl -L -s https://dl.k8s.io/release/stable.txt)/bin/linux/amd64/kubectl"
sudo install -o root -g root -m 0755 kubectl /usr/local/bin/kubectl

Step 3: Verify Kubectl Installation

Check the client version to confirm successful installation:

kubectl version –client

```
vboxuser@Ubuntu:~$ kubectl version --client
Client Version: v1.32.3
Kustomize Version: v5.5.0
```

Step 4: Create a Deployment

Create a deployment named `pod1` with the image `shankar4112/devops-training`:

kubectl create deployment y1 --image=vijith22csr239/dev --port=80

```
vboxuser@Ubuntu:~$ kubectl create deployment y1 --image=vijith22csr239/dev --port=80
deployment.apps/y1 created
```

Step 5: Expose the Deployment

Expose the deployment as a NodePort service:

kubectl expose deployment y1 --port=80 --type=NodePort

```
vboxuser@Ubuntu:~$ kubectl expose deployment y1 --port=80 --type=NodePort
service/y1 exposed
```

Step 6: Verify the Pod

Check the running pods:

kubectl get pods

```
vboxuser@Ubuntu:~$ kubectl get pods
NAME                    READY   STATUS    RESTARTS   AGE
y-7c59f4b849-gg67g      1/1     Running   0          3m39s
y1-5db6df44bc-c7cfc     1/1     Running   0          112s
```

Step 7: Access the Service

Expose the service using Minikube and get the URL:

minikube service y1

```
vboxuser@Ubuntu:~$ minikube service y1
|-----------|------|-------------|--------------------------|
| NAMESPACE | NAME | TARGET PORT |           URL            |
|-----------|------|-------------|--------------------------|
| default   | y1   |          80 | http://192.168.49.2:30814 |
|-----------|------|-------------|--------------------------|
🎉  Opening service default/y1 in default browser...
vboxuser@Ubuntu:~$ update.go:85: cannot change mount namespace according to change mount (/run/user/1000/doc/by-app/snap.firefox /run/user/1000/d
oc none bind,rw,x-snapd.ignore-missing 0 0): cannot inspect "/run/user/1000/doc": lstat /run/user/1000/doc: permission denied
Gtk-Message: 06:00:47.333: Not loading module "atk-bridge": The functionality is provided by GTK natively. Please try to not load it.
[25255, Main Thread] WARNING: Failed to read portal settings: GDBus.Error:org.freedesktop.DBus.Error.AccessDenied: Portal operation not allowed:
Unable to open /proc/25255/root: 'glib warning', file /build/firefox/parts/firefox/build/toolkit/xre/nsSigHandlers.cpp:201

(firefox_firefox:25255): Gdk-WARNING **: 06:00:47.417: Failed to read portal settings: GDBus.Error:org.freedesktop.DBus.Error.AccessDenied: Porta
l operation not allowed: Unable to open /proc/25255/root
vboxuser@Ubuntu:~$
```

Step 8: Output in the Web Browser