

ASSIGNMENT 2

Exercise 3: Create a Pod using a YAML Manifest.

Objective: Define and deploy a pod using YAML.

Step 1: Create a YAML file (nginx-pod.yaml):

```
master@master-vm:~$ nano nginx-pod.yaml
```

```
GNU nano 4.8 nginx-pod.yaml
apiVersion: v1
kind: Pod
metadata:
  name: nginx-pod
spec:
  containers:
  - name: nginx
    image: nginx:latest
    ports:
    - containerPort: 80
```

Step 2: Apply the YAML file:

```
master@master-vm:~$ kubectl apply -f nginx-pod.yaml
pod/nginx-pod created
```

Step 3: Check if the pod is running:

```
master@master-vm:~$ kubectl get pods
NAME      READY   STATUS    RESTARTS   AGE
nginx-pod 1/1     Running   0           51s
```

Step 4: Delete the pod using YAML:

```
master@master-vm:~$ kubectl delete -f nginx-pod.yaml
pod "nginx-pod" deleted
```

Exercise 4: Create and Use a ConfigMap

Objective: Store environment variables in a ConfigMap and use it in a pod.

Step 1 : Create a ConfigMap:

```
master@master-vm:~$ kubectl create configmap app-config --from-literal=APP_ENV=production
configmap/app-config created
```

Step 2: Verify ConfigMap:

```
master@master-vm:~$ kubectl get configmaps app-config -o yaml
apiVersion: v1
data:
  APP_ENV: production
kind: ConfigMap
metadata:
  creationTimestamp: "2025-03-13T10:13:45Z"
  name: app-config
  namespace: default
  resourceVersion: "10226"
  uid: 8cea966a-26cb-4b9d-929b-8a204346022e
```

Step 3: Create a pod that uses the ConfigMap (nginx-config-pod.yaml):

```
master@master-vm:~$ nano nginx-config-pod.yaml
```

```
GNU nano 4.8 nginx-config-pod.yaml
apiVersion: v1
kind: Pod
metadata:
  name: nginx-config-pod
spec:
  containers:
  - name: nginx
    image: nginx
    env:
    - name: APP_ENV
      valueFrom:
        configMapKeyRef:
          name: app-config
          key: APP_ENV
```

Step 4: Deploy the pod:

```
master@master-vm:~$ kubectl apply -f nginx-config-pod.yaml
pod/nginx-config-pod created
```

Step 5: Check if the pod is running:

```
master@master-vm:~$ kubectl apply -f nginx-config-pod.yaml
pod/nginx-config-pod created
master@master-vm:~$ kubectl get pods
NAME          READY   STATUS             RESTARTS   AGE
nginx-config-pod 0/1     ContainerCreating   0           4s
master@master-vm:~$ kubectl get pods
NAME          READY   STATUS    RESTARTS   AGE
nginx-config-pod 1/1     Running   0           18s
```

Step 6: Delete the pod and ConfigMap: