K8s_LAB04

1- create a namespace iti-devops.

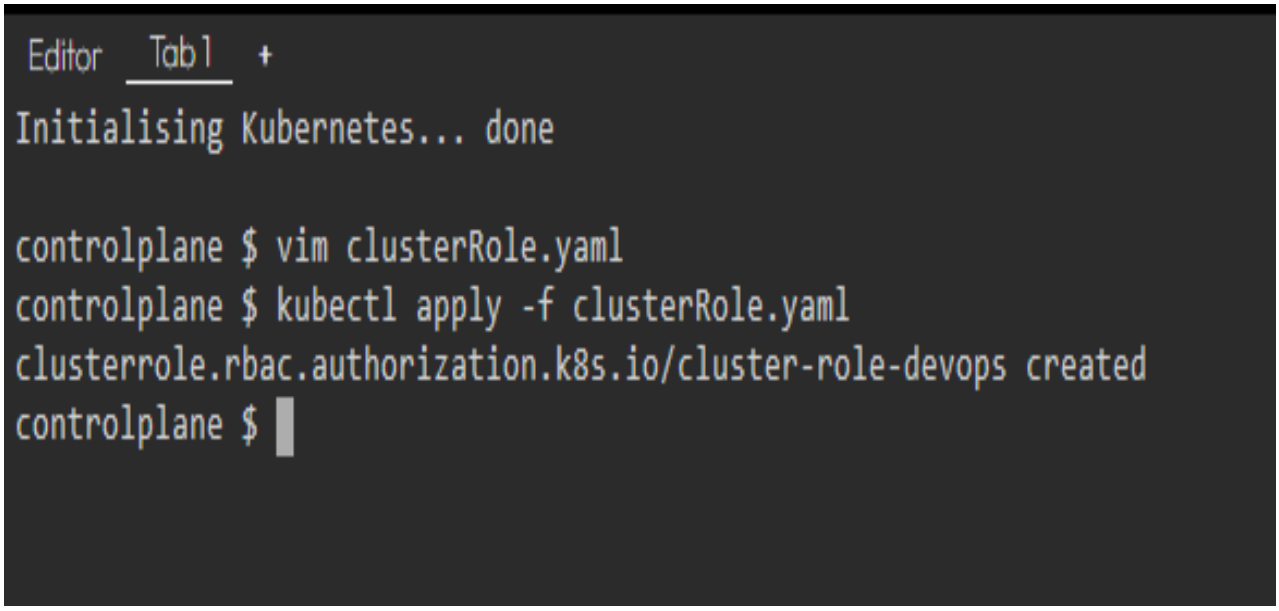
```
Editor   Tab 1   +
Initialising Kubernetes... done

controlplane $ kubectl create namespace iti-devops
namespace/iti-devops created
controlplane $
```

2- create a service account iti-sa-devops under the same namespace.

```
Editor   Tab 1   +
apiVersion: v1
kind: ServiceAccount
metadata:
  name: iti-sa-devops
  namespace: iti-devops
~
~
~
```

```
controlplane $ vim serviceAccount.yaml
controlplane $ kubectl apply -f serviceAccount.yaml
serviceaccount/iti-sa-devops created
controlplane $
```

3- create a clusteRole which should be named as cluster-role-devops to grant permissions “get”,”list”,”watch”,”create”,”patch”,”update” to “configMaps”,”secrets”,”endpoints”,”nodes”,”pods”,”services”,”namespac es”,”events”,”serviceAccou nts”.



4- create a ClusterRoleBinding which should be named as cluster-role-binding-devops under the same namespace. Define roleRef apiGroup should be rbac.authorization.k8s.io . Kind should be ClusterRole, name should be cluster-role-devops and subjects kind should be ServiceAccount: name should be iti-sadevops and namespace should be iti-devops

```
Editor   Tab 1   +
apiVersion: rbac.authorization.k8s.io/v1
kind: ClusterRoleBinding
metadata:
  name: cluster-role-binding
  namespace: iti-devops
subjects:
- kind: ServiceAccount
  name: iti-sa-devops
  namespace: iti-devops
roleRef:
  kind: ClusterRole
  name: cluster-role-devops
  apiGroup: rbac.authorization.k8s.io
~
~
~
~
~
```

```
controlplane $ vim clusterRoleBinding.yaml
controlplane $ kubectl apply -f clusterRoleBinding.yaml
clusterrolebinding.rbac.authorization.k8s.io/cluster-role-binding created
controlplane $
```

5- What is the difference between statefulSets and deployments?

Answer:

A Deployment is a Kubernetes resource object that provides declarative updates for pods that encapsulate application containers. A Deployment represents a number of identical pods without unique IDs, while specifying the pods' desired state and attributes. Deployments are typically used to autoscale the number of pod replicas, perform controlled rollouts for application code, and perform rollbacks when necessary.

A StatefulSet is a Kubernetes resource object that manages a set of pods with unique identities. By assigning a persistent ID that is maintained even if the pod is rescheduled, a StatefulSet helps maintain the uniqueness and ordering of pods. With unique pod identifiers, administrators can efficiently attach cluster volumes to new pods across failures.

6- Set up Ingress on Minikube with the NGINX Ingress Controller play around with paths , you can create more than 2 deployments if you like.

Editor Tab 1 +

```yaml
apiVersion: networking.k8s.io/v1
  kind: Ingress
  metadata:
    name: example-ingress
    annotations:
      nginx.ingress.kubernetes.io/rewrite-target: /$1
  spec:
    rules:
      - host: hello-world.info
        http:
          paths:
            - path: /
              pathType: Prefix
              backend:
                service:
                  name: web
                  port:
                    number: 8080
            - path: /v2
              pathType: Prefix
              backend:
                service:
                  name: web2
                  port:
                    number: 8080
~
~
~
```