UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

APPLICATION CONTAINERIZATION AND ORCHESTRATION LAB

COURSE: B.Tech CSE (Devops)

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Lab Exercise 10– Creating Deployment in Kubernetes

Below is a lab exercise that demonstrates how to create and manage a Deployment in Kubernetes.

Step 1: Create a Deployment Configuration File

Create a file named deployment.yaml with the following configuration:

```yaml
apiVersion: apps/v1
kind: Deployment
metadata:
  name: apache-deployment
  labels:
    app: web
spec:
  replicas: 10
  selector:
    matchLabels:
      app: web
  template:
    metadata:
      labels:
        app: web
    spec:
      containers:
        - name: httpd
          image: httpd
```

Step 2: Apply the Deployment Configuration

Apply the configuration to create the Deployment:

```
priyanshurai@MacBook-Air Lab Exercise 10- Creating Deployment in Kubernetes % kubectl apply -f deployment.yaml
[deployment.apps/apache-deployment created
```

Step 3: View the Deployment and Pods

View the created Deployment and the associated Pods:

```
[priyanshurai@MacBook-Air Lab Exercise 10- Creating Deployment in Kubernetes % kubectl get deployments
NAME                READY   UP-TO-DATE   AVAILABLE   AGE
apache-deployment   10/10   10           10          87s
[priyanshurai@MacBook-Air Lab Exercise 10- Creating Deployment in Kubernetes % kubectl get pods
NAME                                 READY   STATUS    RESTARTS      AGE
apache-deployment-5646dd6f6c-57lfr   1/1     Running   0             3m11s
apache-deployment-5646dd6f6c-9g747   1/1     Running   0             3m11s
apache-deployment-5646dd6f6c-blm9q   1/1     Running   0             3m11s
apache-deployment-5646dd6f6c-j7hbc   1/1     Running   0             3m11s
apache-deployment-5646dd6f6c-knkfj   1/1     Running   0             3m11s
apache-deployment-5646dd6f6c-vqg6c   1/1     Running   0             3m11s
apache-deployment-5646dd6f6c-wh5nx   1/1     Running   0             3m11s
apache-deployment-5646dd6f6c-wkhj4   1/1     Running   0             3m11s
apache-deployment-5646dd6f6c-x6ldd   1/1     Running   0             3m11s
apache-deployment-5646dd6f6c-x7bbz   1/1     Running   0             3m11s
my-nginx-rs-2jr4v                    1/1     Running   2 (12h ago)   46h
my-nginx-rs-lswbl                    1/1     Running   2 (12h ago)   46h
my-nginx-rs-t4k28                    1/1     Running   2 (12h ago)   46h
my-nginx-rs-vqc6b                    1/1     Running   2 (12h ago)   46h
my-nginx-rs-w8nsf                    1/1     Running   2 (12h ago)   46h
```

Step 4: Delete the Deployment

Delete the Deployment:

```
[priyanshurai@MacBook-Air Lab Exercise 10- Creating Deployment in Kubernetes % kubectl delete deployment apache-deployment
deployment.apps "apache-deployment" deleted
priyanshurai@MacBook-Air Lab Exercise 10- Creating Deployment in Kubernetes %
```

Conclusion

This exercise demonstrated how to create, manage, and update a Deployment in Kubernetes. You learned how to scale the Deployment, update the image, and perform a rolling update to the Deployment. Experiment further with different configurations and update strategies to deepen your understanding of managing Deployments in Kubernetes.