Module 7: Kubernetes Assignment-5

1. Use the previous deployment

2. Deploy an NGINX deployment of 3 replicas

3. Create an NGINX service of type ClusterIP

4. Create an ingress service /Apache to Apache service/ NGINX to NGINX service

I am assuming that in task 2 & 3 of the given tasks, it is apache deployment and service as nginx deployment and service are already deployed in previous deployment and we are using previous deployment as well in this

- Creating a manifest file to deploy apache2 deployment with 3 replicas

```
kind: Deployment
metadata:
  name: assign5-deployment
  labels:
    app: apache2
spec:
  replicas: 3
  selector:
    matchLabels:
      app: apache2
  template:
    metadata:
      labels:
        app: apache2
    spec:
      containers:
      - name: apache2
        image: http:latest
        ports:
        - containerPort: 80
"apache2-deployment.yml" 21L, 351C
```

- Applied the manifest file to deploy 3 replicas of apache2
- We can check deployment by $ kubectl get deployments and status of pods by $ kubectl get pods

```
ubuntu@k8-master:~$ kubectl apply -f apache2-deployment.yml
deployment.apps/assign5-deployment configured
ubuntu@k8-master:~$ kubectl get deployments
NAME                READY   UP-TO-DATE   AVAILABLE   AGE
assign5-deployment   2/3     3            2           15m
nginx-deployment     5/5     5            5           5h7m
ubuntu@k8-master:~$ kubectl get deployments
NAME                READY   UP-TO-DATE   AVAILABLE   AGE
assign5-deployment   3/3     3            3           15m
nginx-deployment     5/5     5            5           5h7m
```

```
ubuntu@k8-master:~$ kubectl get po
NAME                                    READY   STATUS    RESTARTS   AGE
assign5-deployment-6b86dfbfdf-8qkkr     1/1     Running   0          2m6s
assign5-deployment-6b86dfbfdf-9cdfd     1/1     Running   0          2m13s
assign5-deployment-6b86dfbfdf-nvsj6     1/1     Running   0          2m8s
nginx-deployment-7c5ddbdf54-6j788       1/1     Running   0          5h9m
nginx-deployment-7c5ddbdf54-8jwgh       1/1     Running   0          5h9m
nginx-deployment-7c5ddbdf54-9pfjx       1/1     Running   0          4h30m
nginx-deployment-7c5ddbdf54-cmws6       1/1     Running   0          5h9m
nginx-deployment-7c5ddbdf54-rmrkm       1/1     Running   0          4h30m
ubuntu@k8-master:~$
```

- Then created a manifest file to create a service

```
apiVersion: v1
kind: Service
metadata:
  name: service-apache2-assignment5
spec:
  type: ClusterIP
  selector:
    app: apache2
  ports:
    - port: 80
      nodePort: null
~
```

- The service is deployed to the kubernates cluster successfully.
- We can see the deployed service by $ kubectl get svc

```
ubuntu@k8-master:~$ vi serviceapache2.yml
ubuntu@k8-master:~$ kubectl apply -f serviceapache2.yml
service/service-apache2-assignment5 created
ubuntu@k8-master:~$ kubectl get svc
NAME                            TYPE        CLUSTER-IP       EXTERNAL-IP   PORT(S)   AGE
kubernetes                      ClusterIP   10.96.0.1        <none>        443/TCP   6h25m
nodeport-service-assignment2    ClusterIP   10.105.91.254    <none>        80/TCP    4h43m
service-apache2-assignment5     ClusterIP   10.98.33.164     <none>        80/TCP    10s
```

- Ingress controller is must to create an ingress service. Here I am deploying a ingress-nginx

```
ubuntu@k8-master:~$ kubectl apply -f https://raw.githubusercontent.com/kubernetes/ingress-nginx/controller-v0.49.0/deploy/static/provider/bar
emetal/deploy.yaml
namespace/ingress-nginx created
serviceaccount/ingress-nginx created
configmap/ingress-nginx-controller created
clusterrole.rbac.authorization.k8s.io/ingress-nginx created
clusterrolebinding.rbac.authorization.k8s.io/ingress-nginx created
role.rbac.authorization.k8s.io/ingress-nginx created
rolebinding.rbac.authorization.k8s.io/ingress-nginx created
service/ingress-nginx-controller-admission created
service/ingress-nginx-controller created
deployment.apps/ingress-nginx-controller created
validatingwebhookconfiguration.admissionregistration.k8s.io/ingress-nginx-admission created
serviceaccount/ingress-nginx-admission created
clusterrole.rbac.authorization.k8s.io/ingress-nginx-admission created
clusterrolebinding.rbac.authorization.k8s.io/ingress-nginx-admission created
role.rbac.authorization.k8s.io/ingress-nginx-admission created
rolebinding.rbac.authorization.k8s.io/ingress-nginx-admission created
job.batch/ingress-nginx-admission-create created
job.batch/ingress-nginx-admission-patch created
```

- Then created a manifest file to deploy an ingress service /Apache to Apache service/ NGINX to NGINX service

```yaml
apiVersion: networking.k8s.io/v1
kind: Ingress
metadata:
  name: assign5-ingress
  annotations:
    nginx.ingress.kubernetes.io/rewrite-target: /
spec:
  ingressClassName: nginx-example
  rules:
  - http:
      paths:
      - path: /nginx
        pathType: Prefix
        backend:
          service:
            name: nodeport-service-assignment2
            port:
              number: 80
```

```yaml
  rules:
  - http:
      paths:
      - path: /apache
        pathType: Prefix
        backend:
          service:
            name: service-apache2-assignment5
            port:
              number: 80
```

- Ingress service is deployed to kubernates cluster successfully

```
ubuntu@k8-master:~$ vi ingress.yml
ubuntu@k8-master:~$ kubectl apply -f ingress.yml
ingress.networking.k8s.io/assign5-ingress created
ubuntu@k8-master:~$ kubectl get ing
NAME              CLASS           HOSTS   ADDRESS   PORTS   AGE
assign5-ingress   nginx-example   *                 80      15s
```