

## Lab Exercise 9- Create Service in Kubernetes

### Objective:

- Understand the syntax and structure of a Kubernetes Service definition file (YAML).

### Prerequisites

- Kubernetes Cluster: Have a running Kubernetes cluster (locally using Minikube or kind, or a cloud-based service).
- kubectl: Install and configure kubectl to interact with your Kubernetes cluster.
- Basic Knowledge of YAML: Familiarity with YAML format will be helpful for understanding Kubernetes resource definitions.

### Step-by-Step Guide

#### NodePort Service

To expose the Service on a port on each Node in the cluster, modify the Service type to NodePort.

Create a YAML file named ***service.yaml*** with the following content:

***service.yaml***

```
apiVersion: v1
kind: Service
metadata:
  name: nodeport-service
spec:
  selector:
    app: web
  ports:
    - protocol: TCP
      port: 80
      targetPort: 80
      nodePort: 30007 # A specific port in the range 30000-32767
  type: NodePort
```

**Explanation:**

- The primary difference from the ClusterIP Service is the addition of nodePort, which specifies the static port on each Node.
- type: Set to NodePort, exposing the Service on a specific port across all Nodes.

**Apply this YAML to create the NodePort Service:**

```
kubectl apply -f nodeport-service.yaml
```

```
PS C:\Users\Devanshi\Desktop\lab_8> kubectl apply -f nodeport-service.yaml
service/nodeport-service created
```

**Verify the Service:**

```
kubectl get services
```

```
PS C:\Users\Devanshi\Desktop\lab_8> kubectl get services
NAME                TYPE          CLUSTER-IP    EXTERNAL-IP    PORT(S)          AGE
kubernetes           ClusterIP     10.96.0.1     <none>         443/TCP          11m
nodeport-service     NodePort      10.96.60.188  <none>         80:30007/TCP     22s
```

You should see the nodeport-service listed with a NodePort and details about the port exposed.