Create Kubernetes Pod using YAML Descriptors (ConfigMap + Pod)

Step 1: Start Minikube

minikube start

Step 2: Create Node.js file

```
nano server.js

const http = require("http");
const port = 3000;

http.createServer((req, res) => {
  res.end("Hello from Node.js running inside Kubernetes!");
}).listen(port);
```

Step 3: Create ConfigMap YAML

```
nano nodejs-configmap.yaml

apiVersion: v1
kind: ConfigMap
metadata:
  name: nodejs-app-config
data:
  server.js: |
    const http = require("http");
    const port = 3000;
    http.createServer((req, res) => {
      res.end("Hello from Node.js running inside Kubernetes!");
    }).listen(port);
```

Step 4: Create Pod YAML

```
nano nodejs-pod.yaml

apiVersion: v1
kind: Pod
metadata:
```

```
  name: program-8
spec:
  containers:
  - name: nodejs
    image: node:18
    command: ["node", "/usr/src/app/server.js"]
    ports:
    - containerPort: 3000
    volumeMounts:
    - name: app-code
      mountPath: /usr/src/app
  volumes:
  - name: app-code
    configMap:
      name: nodejs-app-config
```

Step 5: Apply YAML files

```
kubectl apply -f nodejs-configmap.yaml
kubectl apply -f nodejs-pod.yaml
```

Step 6: Verify Pod

```
kubectl get pods
```

Step 7: Access Application

```
kubectl port-forward pod/program-8 3000:3000
```

Open browser:

```
http://localhost:3000
```

Step 8: Cleanup

```
kubectl delete pod program-8
kubectl delete configmap nodejs-app-config
```

```
abhishek@Abhishek-Ubuntu: ~   abhishek@Abhishek-Ubuntu: ~   abhishek@Abhishek-Ubuntu: ~   abhishek@Abhishek-Ubuntu: ~
abhishek@Abhishek-Ubuntu:~$ minikube start
😄  minikube v1.37.0 on Ubuntu 24.04
✨  Using the docker driver based on existing profile
👍  Starting "minikube" primary control-plane node in "minikube" cluster
🚜  Pulling base image v0.0.48 ...
🔄  Restarting existing docker container for "minikube" ...
🐳  Preparing Kubernetes v1.34.0 on Docker 28.4.0 ...
🔎  Verifying Kubernetes components...
    ▪ Using image gcr.io/k8s-minikube/storage-provisioner:v5
🌟  Enabled addons: storage-provisioner, default-storageclass
🏄  Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default
abhishek@Abhishek-Ubuntu:~$ nano server.js
abhishek@Abhishek-Ubuntu:~$ nano nodejs-configmap.yaml
abhishek@Abhishek-Ubuntu:~$ nano nodejs-pod.yaml
abhishek@Abhishek-Ubuntu:~$ kubectl apply -f nodejs-configmap.yaml
kubectl apply -f nodejs-pod.yaml
configmap/nodejs-app-config created
pod/program-8 created
abhishek@Abhishek-Ubuntu:~$ kubectl get pods
NAME        READY   STATUS              RESTARTS   AGE
program-8   0/1     ContainerCreating   0          16s
abhishek@Abhishek-Ubuntu:~$ kubectl get pods
NAME        READY   STATUS              RESTARTS   AGE
program-8   0/1     ContainerCreating   0          21s
abhishek@Abhishek-Ubuntu:~$ kubectl get pods
NAME        READY   STATUS              RESTARTS   AGE
program-8   0/1     ContainerCreating   0          39s
abhishek@Abhishek-Ubuntu:~$ kubectl get pods
NAME        READY   STATUS              RESTARTS   AGE
program-8   0/1     ContainerCreating   0          64s
abhishek@Abhishek-Ubuntu:~$ kubectl port-forward pod/program-8 3000:3000
error: unable to forward port because pod is not running. Current status=Pending
abhishek@Abhishek-Ubuntu:~$ kubectl get pods
```

```
abhishek@Abhishek-Ubuntu:~$ kubectl get pods
NAME        READY   STATUS              RESTARTS   AGE
program-8   0/1     ContainerCreating   0          64s
abhishek@Abhishek-Ubuntu:~$ kubectl port-forward pod/program-8 3000:3000
error: unable to forward port because pod is not running. Current status=Pending
abhishek@Abhishek-Ubuntu:~$ kubectl get pods
NAME        READY   STATUS              RESTARTS   AGE
program-8   0/1     ContainerCreating   0          77s
abhishek@Abhishek-Ubuntu:~$ kubectl apply -f nodejs-pod.yaml
pod/program-8 configured
abhishek@Abhishek-Ubuntu:~$ kubectl get pods
NAME        READY   STATUS    RESTARTS   AGE
program-8   1/1     Running   0          2m2s
abhishek@Abhishek-Ubuntu:~$ kubectl port-forward pod/program-8 3000:3000
Forwarding from 127.0.0.1:3000 -> 3000
Forwarding from [::1]:3000 -> 3000
Handling connection for 3000
error: lost connection to pod
abhishek@Abhishek-Ubuntu:~$
```