📄 Task 1: Deploy the Application

Objective: Deploy a Node.js application to Kubernetes and confirm that it is running and healthy.

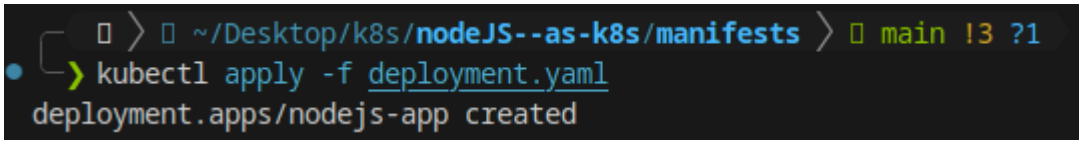
🛠️ Deployment Steps

1. Created a Kubernetes Deployment using the `deployment.yaml` manifest file.
2. Deployed the application using `kubectl apply`.
3. Verified the Pod reached the **Running** state and is **Ready**.
4. Inspected the Pod for health and container status.

📸 Screenshots

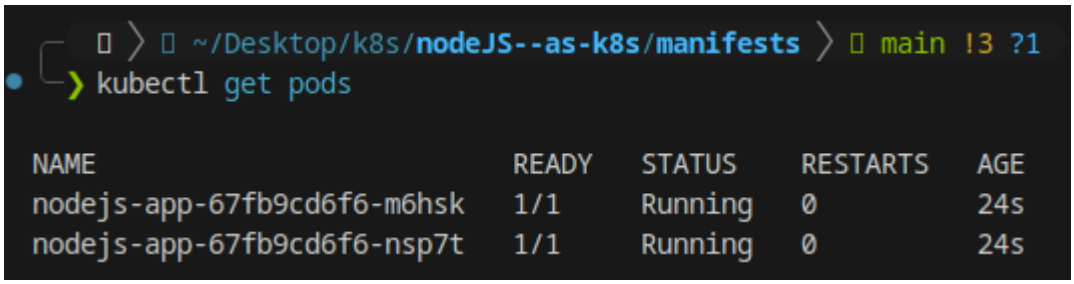
- **Screenshot 1:**

  `kubectl apply -f deployment.yaml`



- **Screenshot 2:**

  `kubectl get pods`
  (Verifies the Pod is running and in Ready state)



- **Screenshot 3 (optional but recommended):**

  `kubectl describe pod <pod-name>`
  (Shows container has no errors and is running normally)

```
 ~/Desktop/k8s/nodeJS--as-k8s/manifests  main !3 ?2
❯ kubectl describe pod nodejs-app-67fb9cd6f6-m6hsk

Name:             nodejs-app-67fb9cd6f6-m6hsk
Namespace:        default
Priority:         0
Service Account:  default
Node:             minikube/192.168.49.2
Start Time:       Fri, 01 Aug 2025 06:06:05 +0300
Labels:           app=nodejs
                  pod-template-hash=67fb9cd6f6
Annotations:      <none>
Status:           Running
IP:               10.244.0.6
IPs:
  IP:           10.244.0.6
Controlled By:  ReplicaSet/nodejs-app-67fb9cd6f6
Containers:
  nodejs:
    Container ID:   docker://1159b5e73ac6a110af39f503c16ffc01b8c5292b69cd045ca15bc93feef885d4
    Image:          karimzakzouk/nodejs-hello:latest
    Image ID:       docker-pullable://karimzakzouk/nodejs-hello@sha256:04f1e02241831aa3b5bdcaef4b4b62077efae748cb9c82836f181371805fca9b
    Port:           3000/TCP
    Host Port:      0/TCP
    State:          Running
      Started:      Fri, 01 Aug 2025 06:06:15 +0300
    Ready:          True
    Restart Count:  0
    Environment:    <none>
    Mounts:
      /var/run/secrets/kubernetes.io/serviceaccount from kube-api-access-4xcjn (ro)
Conditions:
  Type                        Status
  PodReadyToStartContainers   True
  Initialized                 True
  Ready                       True
  ContainersReady             True
  PodScheduled                True
Volumes:
  kube-api-access-4xcjn:
    Type:                    Projected (a volume that contains injected data from multiple sources)
    TokenExpirationSeconds:  3607
    ConfigMapName:           kube-root-ca.crt
    Optional:                false
    DownwardAPI:             true
QoS Class:                   BestEffort
Node-Selectors:              <none>
Tolerations:                 node.kubernetes.io/not-ready:NoExecute op=Exists for 300s
                             node.kubernetes.io/unreachable:NoExecute op=Exists for 300s
Events:
  Type    Reason     Age   From               Message
  ----    ------     ----  ----               -------
  Normal  Scheduled  46s   default-scheduler  Successfully assigned default/nodejs-app-67fb9cd6f6-m6hsk to minikube
  Normal  Pulling    46s   kubelet            Pulling image "karimzakzouk/nodejs-hello:latest"
  Normal  Pulled     36s   kubelet            Successfully pulled image "karimzakzouk/nodejs-hello:latest" in 7.072s (9.194s including waiting). Image size: 126983338 bytes.
  Normal  Created    36s   kubelet            Created container: nodejs
  Normal  Started    36s   kubelet            Started container nodejs
```

✅ Outcome

The Node.js app was successfully deployed. The Pod is up, running, and responding as expected.
