Nginx Task 3

1 - create minikube cluster

2 - create nginx deployment with 3 replicas

3 - create service to point to this deployment , type cluster IP

4 - create debug pod to test the service

The Solution:

1 –

```
amr@DESKTOP-D5VVHN0: ~/
amr@DESKTOP-D5VVHN0:~/ng-tasks/task_1$ minikube status
minikube
type: Control Plane
host: Running
kubelet: Running
apiserver: Running
kubeconfig: Configured

amr@DESKTOP-D5VVHN0:~/ng-tasks/task_1$ kubectl version -o yaml
clientVersion:
  buildDate: "2023-05-17T14:20:07Z"
  compiler: gc
  gitCommit: 7f6f68fdabc4df88cfea2dcf9a19b2b830f1e647
  gitTreeState: clean
  gitVersion: v1.27.2
  goVersion: go1.20.4
  major: "1"
  minor: "27"
  platform: linux/amd64
kustomizeVersion: v5.0.1
serverVersion:
  buildDate: "2023-03-15T13:33:12Z"
  compiler: gc
  gitCommit: 9e644106593f3f4aa98f8a84b23db5fa378900bd
  gitTreeState: clean
  gitVersion: v1.26.3
  goVersion: go1.19.7
  major: "1"
  minor: "26"
  platform: linux/amd64
```

```
amr@DESKTOP-D5VVHN0:~/ng-tasks/task_1$ kubectl cluster-info
Kubernetes control plane is running at https://127.0.0.1:32769
CoreDNS is running at https://127.0.0.1:32769/api/v1/namespaces/kube-system/services/kube-dns:dns/proxy

To further debug and diagnose cluster problems, use 'kubectl cluster-info dump'.
amr@DESKTOP-D5VVHN0:~/ng-tasks/task_1$ kubectl get nodes
NAME       STATUS   ROLES           AGE   VERSION
minikube   Ready    control-plane   58m   v1.26.3
amr@DESKTOP-D5VVHN0:~/ng-tasks/task_1$
```

2 –

amr@DESKTOP-D5VVHN0

```yaml
apiVersion: apps/v1
kind: Deployment
metadata:
  name: nginx-deployment
spec:
  replicas: 3
  selector:
    matchLabels:
      app: nginx
  template:
    metadata:
      labels:
        app: nginx
    spec:
      containers:
      - name: nginx
        image: nginx
        ports:
        - containerPort: 80
```

amr@DESKTOP-D5VVHN0: ~/

```
amr@DESKTOP-D5VVHN0:~/ng-tasks/task_1$ ls
amr@DESKTOP-D5VVHN0:~/ng-tasks/task_1$ vim nginx-deployment.yaml
amr@DESKTOP-D5VVHN0:~/ng-tasks/task_1$ ls
nginx-deployment.yaml
amr@DESKTOP-D5VVHN0:~/ng-tasks/task_1$ kubectl apply -f nginx-deployment.yaml
deployment.apps/nginx-deployment created
amr@DESKTOP-D5VVHN0:~/ng-tasks/task_1$ kubectl get nodes
NAME       STATUS   ROLES           AGE   VERSION
minikube   Ready    control-plane   61m   v1.26.3
amr@DESKTOP-D5VVHN0:~/ng-tasks/task_1$ kubectl get deployments
NAME               READY   UP-TO-DATE   AVAILABLE   AGE
nginx-deployment   3/3     3            3           22s
amr@DESKTOP-D5VVHN0:~/ng-tasks/task_1$
```

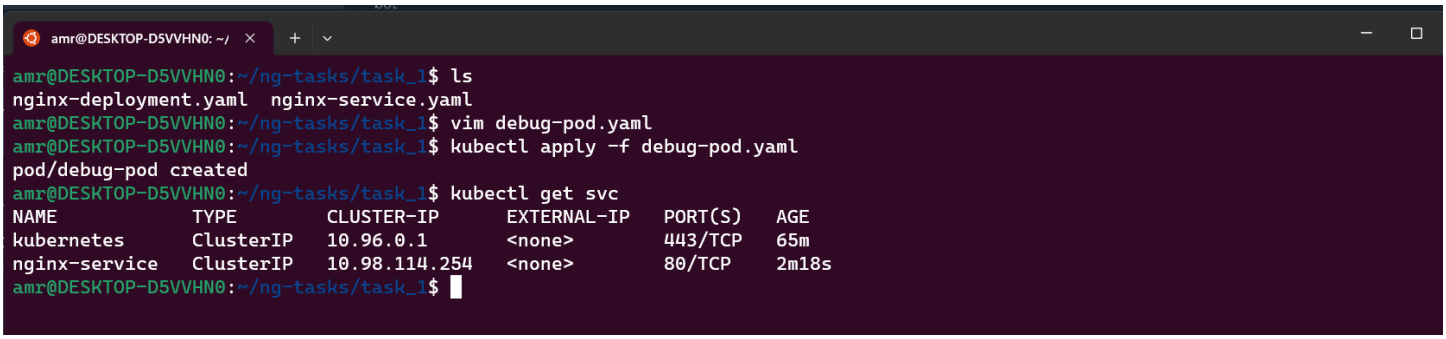
3 –

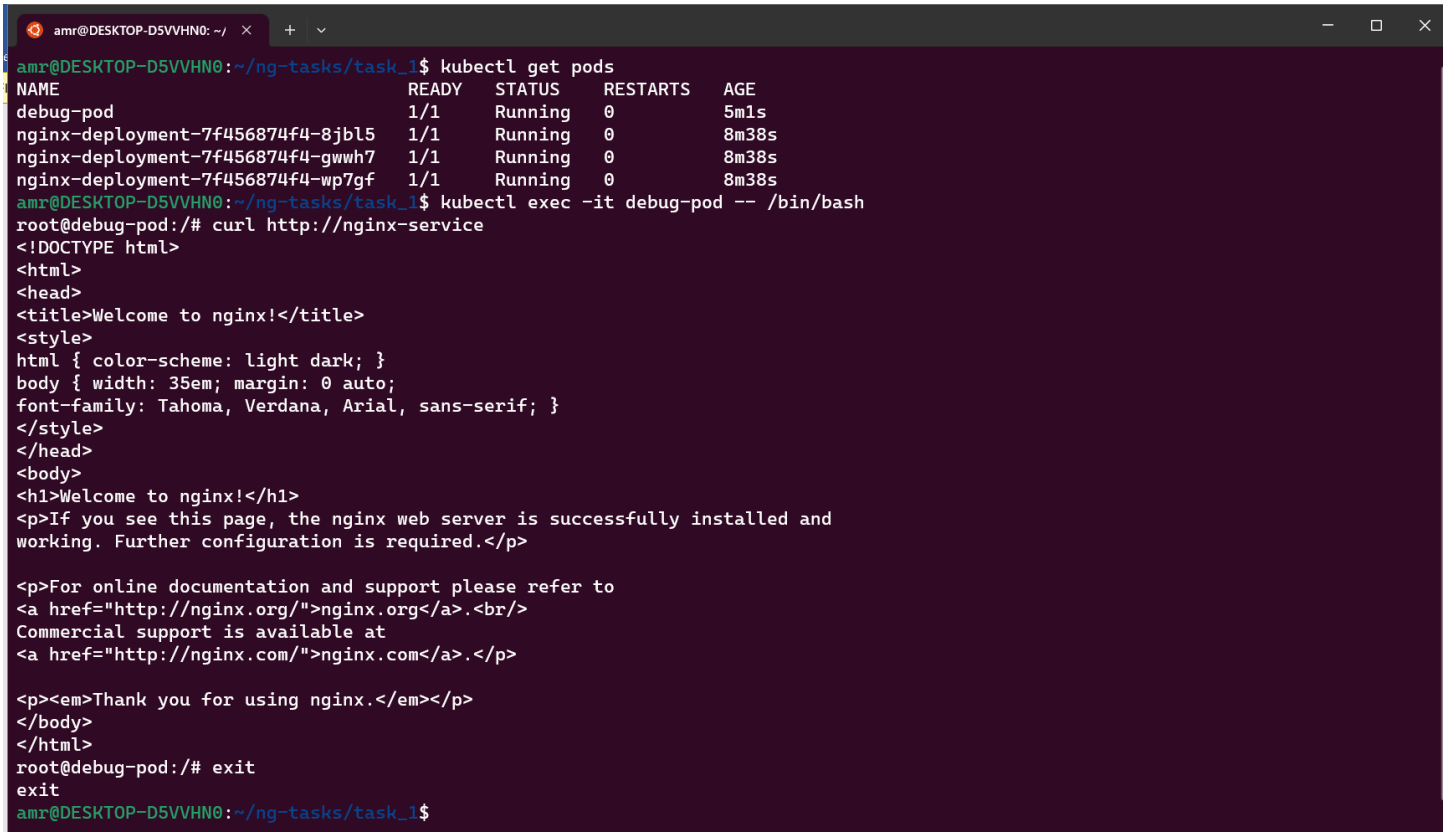
```yaml
apiVersion: v1
kind: Service
metadata:
  name: nginx-service
spec:
  selector:
    app: nginx
  ports:
    - protocol: TCP
      port: 80
      targetPort: 80
  type: ClusterIP
```

```
amr@DESKTOP-D5VVHN0:~/ng-tasks/task_1$ ls
nginx-deployment.yaml
amr@DESKTOP-D5VVHN0:~/ng-tasks/task_1$ vim nginx-service.yaml
amr@DESKTOP-D5VVHN0:~/ng-tasks/task_1$ kubectl apply -f nginx-service.yaml
service/nginx-service created
amr@DESKTOP-D5VVHN0:~/ng-tasks/task_1$ ls
nginx-deployment.yaml  nginx-service.yaml
amr@DESKTOP-D5VVHN0:~/ng-tasks/task_1$ kubectl get services
NAME            TYPE        CLUSTER-IP      EXTERNAL-IP   PORT(S)   AGE
kubernetes      ClusterIP   10.96.0.1       <none>        443/TCP   63m
nginx-service   ClusterIP   10.98.114.254   <none>        80/TCP    19s
amr@DESKTOP-D5VVHN0:~/ng-tasks/task_1$
```

4 –

```yaml
apiVersion: v1
kind : Pod
metadata :
   name : debug-pod
spec :
   containers :
   - name : debug-container
     image : ubuntu
     command : ["/bin/bash", "-c", "apt-get update && apt-get install -y curl && sleep 3600"]
```


amr@DESKTOP-D5VVHN0: ~/
amr@DESKTOP-D5VVHN0:~/ng-tasks/task_1$ ls
nginx-deployment.yaml nginx-service.yaml
amr@DESKTOP-D5VVHN0:~/ng-tasks/task_1$ vim debug-pod.yaml
amr@DESKTOP-D5VVHN0:~/ng-tasks/task_1$ kubectl apply -f debug-pod.yaml
pod/debug-pod created
amr@DESKTOP-D5VVHN0:~/ng-tasks/task_1$ kubectl get svc
NAME   TYPE   CLUSTER-IP   EXTERNAL-IP   PORT(S)   AGE
kubernetes   ClusterIP   10.96.0.1   <none>   443/TCP   65m
nginx-service   ClusterIP   10.98.114.254   <none>   80/TCP   2m18s
amr@DESKTOP-D5VVHN0:~/ng-tasks/task_1$


amr@DESKTOP-D5VVHN0: ~/
amr@DESKTOP-D5VVHN0:~/ng-tasks/task_1$ kubectl get pods
NAME   READY   STATUS   RESTARTS   AGE
debug-pod   1/1   Running   0   5m1s
nginx-deployment-7f456874f4-8jbl5   1/1   Running   0   8m38s
nginx-deployment-7f456874f4-gwwh7   1/1   Running   0   8m38s
nginx-deployment-7f456874f4-wp7gf   1/1   Running   0   8m38s
amr@DESKTOP-D5VVHN0:~/ng-tasks/task_1$ kubectl exec -it debug-pod -- /bin/bash
root@debug-pod:/# curl http://nginx-service
<!DOCTYPE html>
<html>
<head>
<title>Welcome to nginx!</title>
<style>
html { color-scheme: light dark; }
body { width: 35em; margin: 0 auto;
font-family: Tahoma, Verdana, Arial, sans-serif; }
</style>
</head>
<body>
<h1>Welcome to nginx!</h1>
If you see this page, the nginx web server is successfully installed and
working. Further configuration is required.

For online documentation and support please refer to
nginx.org.
Commercial support is available at
nginx.com.

Thank you for using nginx.
</body>
</html>
root@debug-pod:/# exit
exit
amr@DESKTOP-D5VVHN0:~/ng-tasks/task_1$