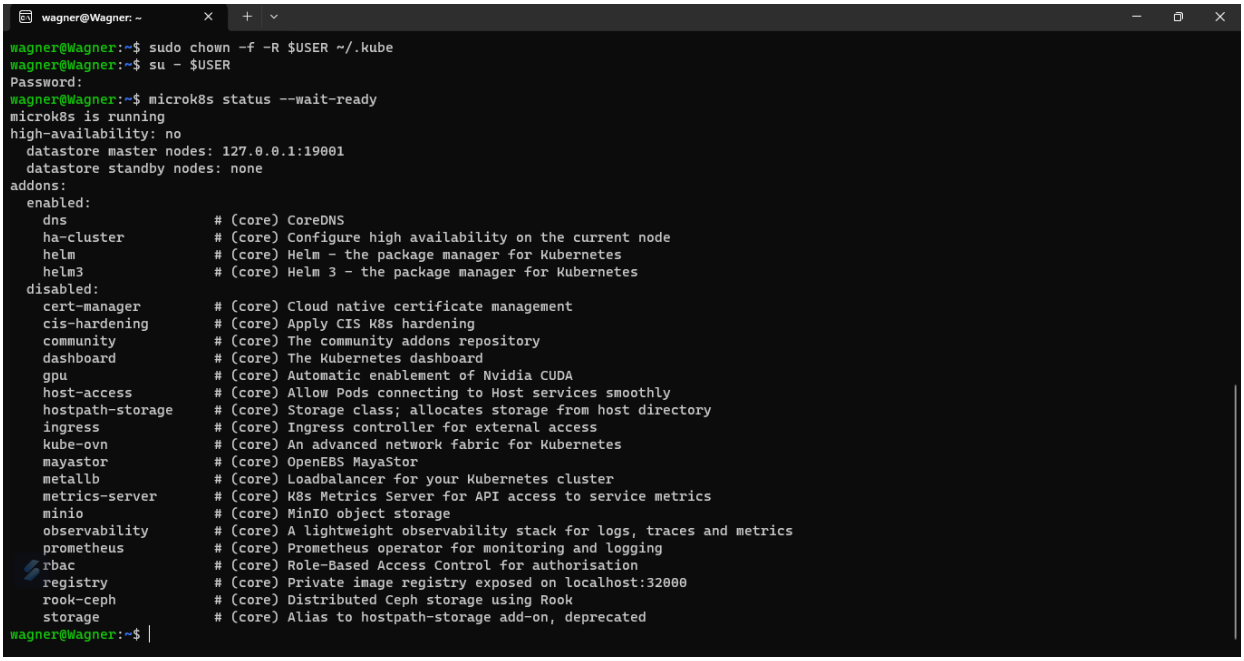
Interview Assignment For DevOps Engineer

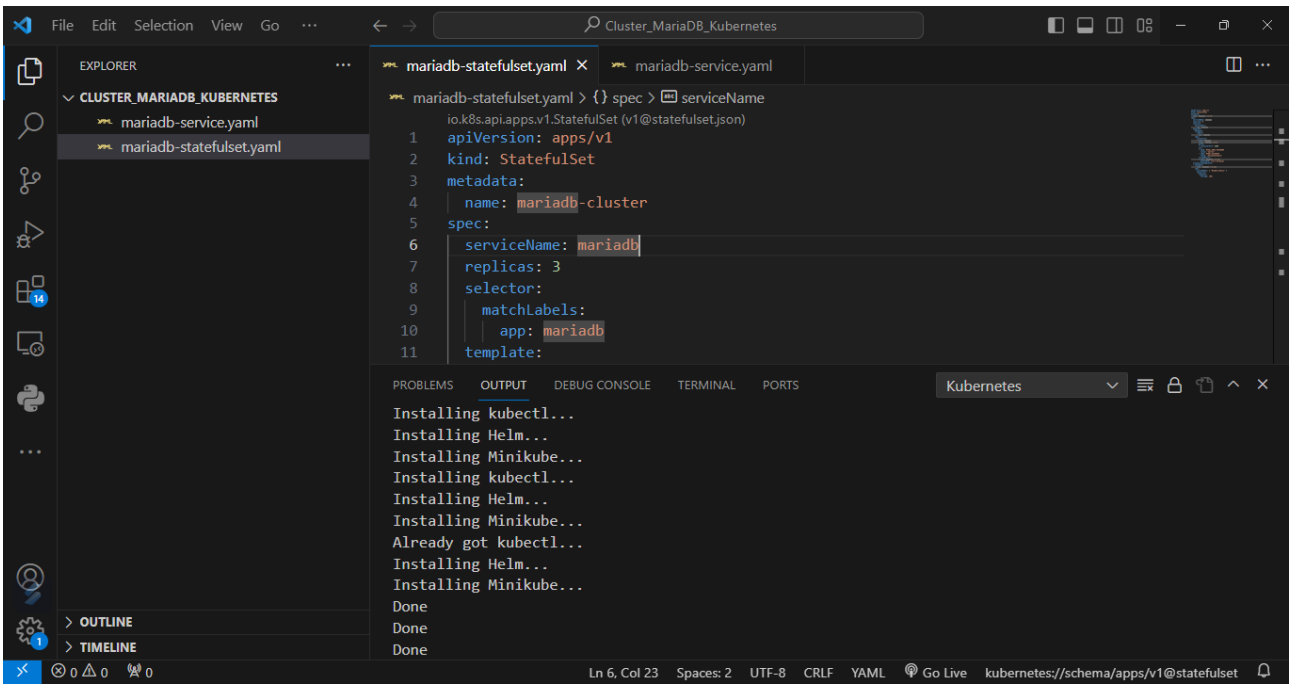
- **Cluster MariaBD – Kubernetes**

Requirements:

- Docker CE
- Minikube ou Microk8s
- Linux Ubuntu 20.04 (Preferably higher than version 18)
- GitHub (https://github.com/wagnersoftwareengineer/Cluster_MariaDB_Kubernetes)
- VsCode

I initialy installed the softwares , below evidence about Microk8s or Minikube:





Then, i create new files about MariaDB configurations inside Yaml and by terminal we can use some commands to start. Attention, you need stay inside the folder to run commands.

microk8s *kubectl apply -f mariadb-statefulset.yaml*
microk8s kubectl apply -f mariadb-service.yaml

Here , created MariaDB Server :

```
wagner@Wagner:/mnt/c/Users/Wagner Santos/Documents/Cluster_MariaDB_Kubernetes$ microk8s kubectl apply -f mariadb-statefulset.yaml
statefulset.apps/mariadb-cluster created
wagner@Wagner:/mnt/c/Users/Wagner Santos/Documents/Cluster_MariaDB_Kubernetes$ microk8s kubectl apply -f mariadb-service.yaml
service/mariadb created
wagner@Wagner:/mnt/c/Users/Wagner Santos/Documents/Cluster_MariaDB_Kubernetes$
```

A change was made to Yaml to expose the IP for external access, so I modified it to run again.

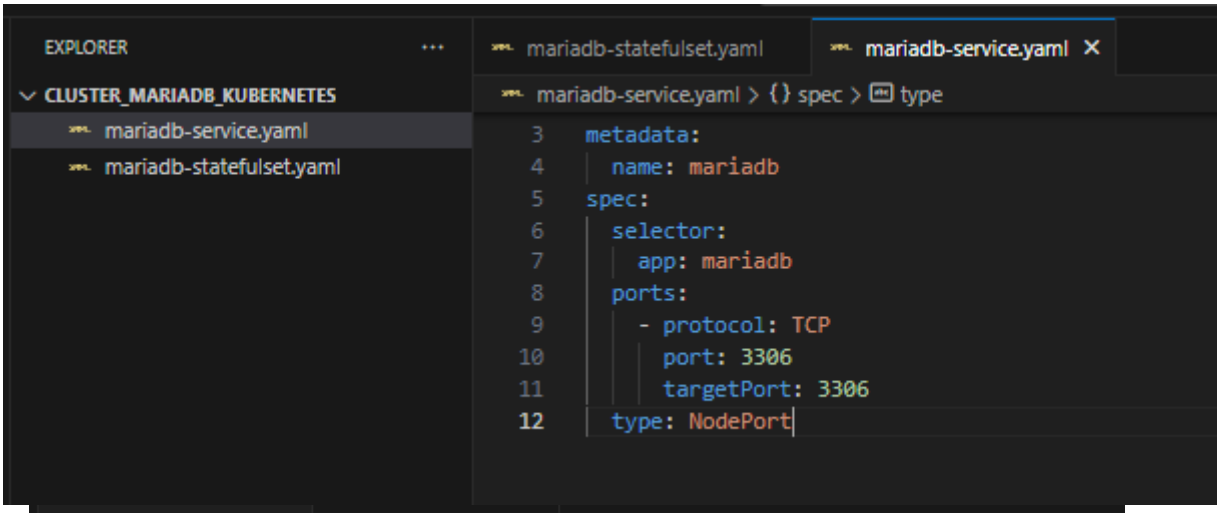
Command delete :

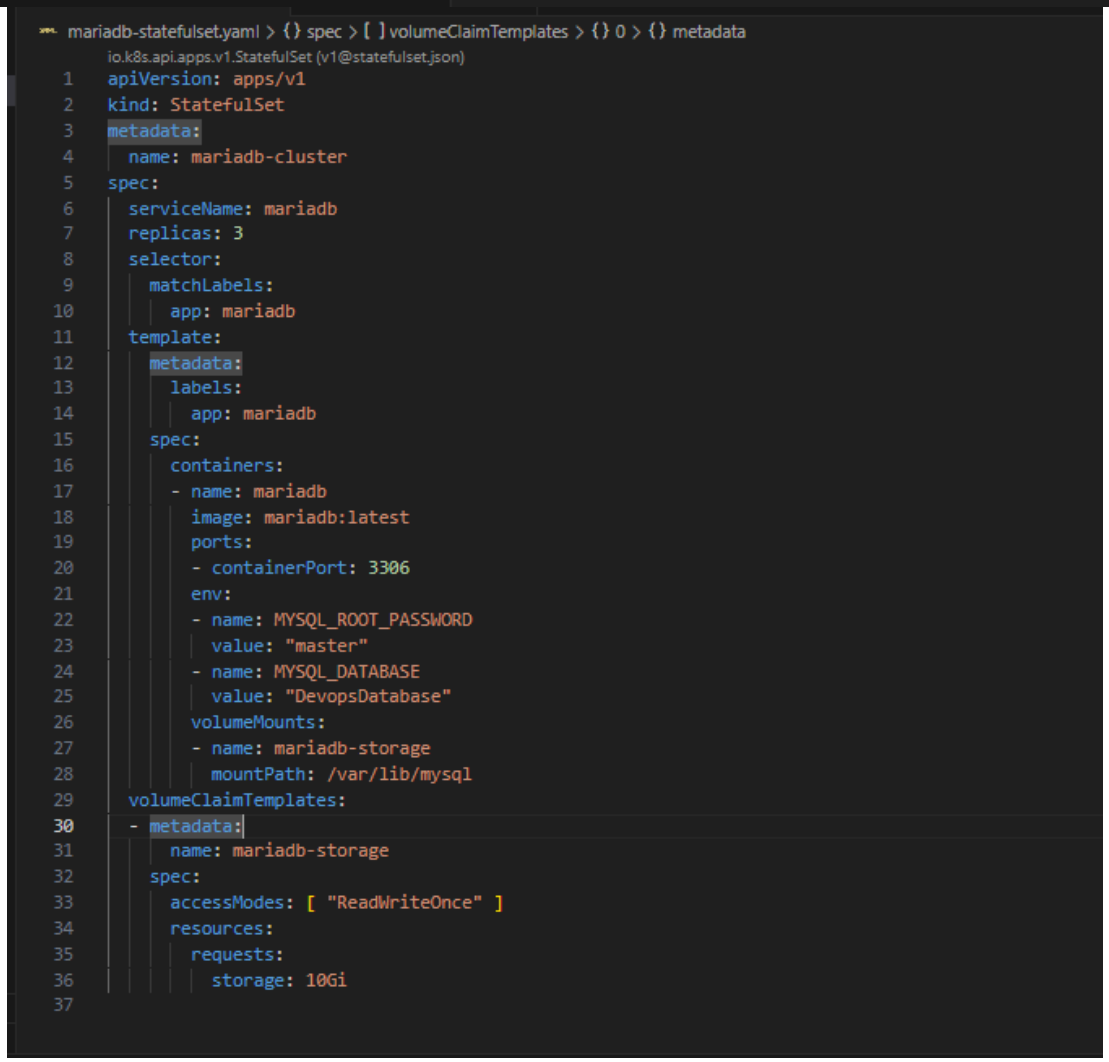
```
wagner@Wagner:/mnt/c/Users/Wagner Santos/Documents/Cluster_MariaDB_Kubernetes$ microk8s kubectl delete statefulset mariadb-cluster
statefulset.apps "mariadb-cluster" deleted
wagner@Wagner:/mnt/c/Users/Wagner Santos/Documents/Cluster_MariaDB_Kubernetes$ microk8s kubectl get services
NAME         TYPE        CLUSTER-IP     EXTERNAL-IP   PORT(S)    AGE
kubernetes   ClusterIP   10.152.183.1   <none>        443/TCP    26m
mariadb      ClusterIP   None           <none>        3306/TCP   6m
wagner@Wagner:/mnt/c/Users/Wagner Santos/Documents/Cluster_MariaDB_Kubernetes$ microk8s kubectl delete service mariadb
service "mariadb" deleted
wagner@Wagner:/mnt/c/Users/Wagner Santos/Documents/Cluster_MariaDB_Kubernetes$ microk8s kubectl get services
NAME         TYPE        CLUSTER-IP     EXTERNAL-IP   PORT(S)   AGE
kubernetes   ClusterIP   10.152.183.1   <none>        443/TCP   27m
wagner@Wagner:/mnt/c/Users/Wagner Santos/Documents/Cluster_MariaDB_Kubernetes$
```

Server created:

```
wagner@Wagner:/mnt/c/Users/Wagner Santos/Documents/Cluster_MariaDB_Kubernetes$ microk8s kubectl get services
NAME         TYPE        CLUSTER-IP       EXTERNAL-IP   PORT(S)          AGE
kubernetes   ClusterIP   10.152.183.1     <none>        443/TCP          35m
mariadb      NodePort    10.152.183.248   <none>        3306:30884/TCP   7s
wagner@Wagner:/mnt/c/Users/Wagner Santos/Documents/Cluster_MariaDB_Kubernetes$
```

Next page I share the Yamls:





To test access :

1 - List the created pods
2 - Access via kubectl exec command
3 - After that, I can use the MariaDB client, which is MySQL
4 -Now connected, I can run any command on the MariaDB Database Client that was applied in Yaml.

Note: I installed the Client to connect to the Bank. In my case the "DevOpsDatabase" database.

```
wagner@Wagner:/mnt/c/Users/Wagner Santos/Documents/Cluster_MariaDB_Kubernetes$ microk8s kubectl delete service mariadb
service "mariadb" deleted
wagner@Wagner:/mnt/c/Users/Wagner Santos/Documents/Cluster_MariaDB_Kubernetes$ microk8s kubectl delete statefulset mariadb-cluster
statefulset.apps "mariadb-cluster" deleted
wagner@Wagner:/mnt/c/Users/Wagner Santos/Documents/Cluster_MariaDB_Kubernetes$ microk8s kubectl apply -f mariadb-statefulset.yaml
statefulset.apps/mariadb-cluster created
wagner@Wagner:/mnt/c/Users/Wagner Santos/Documents/Cluster_MariaDB_Kubernetes$ microk8s kubectl apply -f mariadb-service.yaml
service/mariadb created
wagner@Wagner:/mnt/c/Users/Wagner Santos/Documents/Cluster_MariaDB_Kubernetes$ microk8s kubectl get pods
NAME               READY   STATUS              RESTARTS   AGE
mariadb-cluster-0   0/1     ContainerCreating   0          16s
wagner@Wagner:/mnt/c/Users/Wagner Santos/Documents/Cluster_MariaDB_Kubernetes$ microk8s kubectl get pods
NAME               READY   STATUS              RESTARTS   AGE
mariadb-cluster-0   0/1     ContainerCreating   0          23s
wagner@Wagner:/mnt/c/Users/Wagner Santos/Documents/Cluster_MariaDB_Kubernetes$ microk8s kubectl get node
NAME     STATUS   ROLES    AGE   VERSION
wagner   Ready    <none>   59m   v1.28.3
wagner@Wagner:/mnt/c/Users/Wagner Santos/Documents/Cluster_MariaDB_Kubernetes$ microk8s kubectl exec -it mariadb-cluster-0 -- /bin/bash
root@mariadb-cluster-0:/# mysql -u root -p
```

```
root@mariadb-cluster-0:/# mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 3
Server version: 11.1.2-MariaDB-1:11.1.2+maria~ubu2204 mariadb.org binary distribution

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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql>
```

```
mysql>
mysql>
mysql>
mysql> SHOW DATABASES;
+--------------------+
| Database           |
+--------------------+
| DevopsDatabase     |
| information_schema |
| mysql              |
| performance_schema |
| sys                |
+--------------------+
5 rows in set (0.00 sec)

mysql>
mysql>
mysql>
mysql>
```