

Step 1: Start minikube and all the services

```
saifrehman@all-MS-7D35:~/Documents/eme/SaifUrRehman-DEG-007/Assignment_4.3(kubernetes)/assignment$ minikube start
W0517 10:47:21.234366 66527 main.go:291] Unable to resolve the current Docker CLI context "default": context "default" does not exist
minikube v1.30.1 on Ubuntu 22.04
Using the docker driver based on existing profile
Starting control plane node minikube in cluster minikube
Pulling base image ...
Restarting existing docker container for "minikube" ...
Preparing Kubernetes v1.26.3 on Docker 23.0.2 ...
Configuring bridge CNI (Container Networking Interface) ...
Verifying Kubernetes components...
  Using image gcr.io/k8s-minikube/storage-provisioner:v5
Enabled addons: default-storageclass, storage-provisioner
Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default
saifrehman@all-MS-7D35:~/Documents/eme/SaifUrRehman-DEG-007/Assignment_4.3(kubernetes)/assignment$ kubectl apply -f mongo-secret.yaml
secret/mongodb-secret unchanged
saifrehman@all-MS-7D35:~/Documents/eme/SaifUrRehman-DEG-007/Assignment_4.3(kubernetes)/assignment$ kubectl apply -f mongo-configmap.yaml
configmap/mongodb-configmap unchanged
saifrehman@all-MS-7D35:~/Documents/eme/SaifUrRehman-DEG-007/Assignment_4.3(kubernetes)/assignment$ kubectl apply -f mongodb-deployment.yaml
deployment.apps/mongo-deployment unchanged
saifrehman@all-MS-7D35:~/Documents/eme/SaifUrRehman-DEG-007/Assignment_4.3(kubernetes)/assignment$ kubectl apply -f mongodb-service.yaml
service/mongo-service unchanged
saifrehman@all-MS-7D35:~/Documents/eme/SaifUrRehman-DEG-007/Assignment_4.3(kubernetes)/assignment$ kubectl apply -f mongo-express-deployment.yaml
deployment.apps/mongo-express unchanged
saifrehman@all-MS-7D35:~/Documents/eme/SaifUrRehman-DEG-007/Assignment_4.3(kubernetes)/assignment$ kubectl apply -f mongo-express-service.yaml
service/mongo-express-service unchanged
```

Step 2: List all the deployments in a kubernetes cluster and detailed in about mongo-deployment

```
saifrehman@all-MS-7D35:~/Documents/eme/SaifUrRehman-DEG-007/Assignment_4.3(kubernetes)/assignment$ kubectl get deployments
NAME                READY   UP-TO-DATE   AVAILABLE   AGE
mongo-deployment    1/1     1             1           5d
mongo-express       1/1     1             1           5d
saifrehman@all-MS-7D35:~/Documents/eme/SaifUrRehman-DEG-007/Assignment_4.3(kubernetes)/assignment$ kubectl describe deployments mongo-deployment
Name:
Namespace:
CreationTimestamp:   Fri, 12 May 2023 10:54:26 +0500
Labels:
  app=mongodb
Annotations:
  deployment.kubernetes.io/revision: 1
Selector:
  app=mongodb
Replicas:
  1 desired | 1 updated | 1 total | 1 available | 0 unavailable
StrategyType:
  RollingUpdate
MinReadySeconds:
  0
RollingUpdateStrategy:
  25% max unavailable, 25% max surge
Pod Template:
  Labels:  app=mongodb
  Containers:
    mongodb:
      Image:      mongo
      Port:       27017/TCP
      Host Port:  0/TCP
      Environment:
        MONGO_INITDB_DATABASE:      admin
        MONGO_INITDB_ROOT_USERNAME: <set to the key 'mongo-root-username' in secret 'mongodb-secret'> Optional: false
        MONGO_INITDB_ROOT_PASSWORD: <set to the key 'mongo-root-password' in secret 'mongodb-secret'> Optional: false
      Mounts:
        <none>
      Volumes:
        <none>
  Conditions:
    Type           Status  Reason
    ----           -
    Progressing    True    NewReplicaSetAvailable
    Available      True    MinimumReplicasAvailable
OldReplicaSets:
  <none>
NewReplicaSet:
  mongo-deployment-85bbdc6549 (1/1 replicas created)
Events:
  <none>
```

Step 3:

```
saifrehman@all-MS-7D35:~/Documents/eme/SaifUrRehman-DEG-007/Assignment_4.3(kubernetes)/assignment$ kubectl get pods
NAME                                READY   STATUS    RESTARTS   AGE
mongo-deployment-85bbdc6549-qzp8h  1/1     Running   6 (25m ago)  5d
mongo-express-5bcd46fcff-l8cdr      1/1     Running   17 (25m ago)  5d
saifrehman@all-MS-7D35:~/Documents/eme/SaifUrRehman-DEG-007/Assignment_4.3(kubernetes)/assignment$
```

Step 4: expose a Kubernetes service on our local machine

```
saifrehman@all-MS-7D35:~/Documents/eme/SaifUrRehman-DEG-007/Assignment_4.3(kubernetes)/assignment$ minikube service mongo-express-service
W0517 11:33:33.120002 134507 main.go:291] Unable to resolve the current Docker CLI context "default": context "default" does not exist
|-----|
| NAMESPACE | NAME                | TARGET PORT | URL                               |
|-----|
| default   | mongo-express-service | 8080        | http://192.168.49.2:30001       |
|-----|
Opening service default/mongo-express-service in default browser...
saifrehman@all-MS-7D35:~/Documents/eme/SaifUrRehman-DEG-007/Assignment_4.3(kubernetes)/assignment$ Opening in existing browser session.
```

Step 5: here we created data

Mongo Express Database ▾

Databases

Database Name + Create Database

 View	admin	 Del
 View	config	 Del
 View	local	 Del

Server Status

Turn on admin in config.js to view server stats!

Step 6: kubectl will connect to the pod named mongo-deployment-85bbdc6549-qzp8h and start a shell.

```
sal@freemall-MS-7035: ~/Documents/ene/sal@urrahman-060-007/Assignment_4.3(kubernetes)/assignment$ kubectl exec -it mongo-deployment-85bbdc6549-qzp8h -- /bin/bash
root@mongo-deployment-85bbdc6549-qzp8h:/# mongosh -u $MONGO_INITDB_ROOT_USERNAME -p $MONGO_INITDB_ROOT_PASSWORD
Current Mongosh Log ID: 646482b840957fc39ca8c8cf
Connecting to:  mongodb://<credentials>@127.0.0.1:27017/?directConnection=true&serverSelectionTimeoutMS=2000&appName=mongosh+1.8.2
Using MongoDB:  6.0.5
Using Mongosh:  1.8.2

For mongosh info see: https://docs.mongodb.com/mongosh-shell/

To help improve our products, anonymous usage data is collected and sent to MongoDB periodically (https://www.mongodb.com/legal/privacy-policy).
You can opt-out by running the disableTelemetry() command.

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The server generated these startup warnings when booting
2023-05-17T05:47:58.971+00:00: Using the XFS filesystem is strongly recommended with the WiredTiger storage engine. See http://dochub.mongodb.org/core/prodnotes
-filesystem
2023-05-17T05:47:59.350+00:00: vm.max_map_count is too low
-----

Enable MongoDB's free cloud-based monitoring service, which will then receive and display
metrics about your deployment (disk utilization, CPU, operation statistics, etc).

The monitoring data will be available on a MongoDB website with a unique URL accessible to you
and anyone you share the URL with. MongoDB may use this information to make product
improvements and to suggest MongoDB products and deployment options to you.

To enable free monitoring, run the following command: db.enableFreeMonitoring()
To permanently disable this reminder, run the following command: db.disableFreeMonitoring()
-----

test> 
```

Step 7: output

```
test> use cars
switched to db cars
cars> db.details.find({})
[
  {
    _id: ObjectId("64647fd62e498e00076572cb"),
    make: 'BMW',
    model: '328',
    year: '2020',
    license: 'ARH100'
  },
  {
    _id: ObjectId("64647fd62e498e00076572cc"),
    make: 'Toyota',
    model: 'Camry',
    year: '2016',
    license: 'GHT456'
  }
]
```

