ASSIGNMENT 4.3

on

Kubernetes

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and

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Task 01:

Display logs of a running MongoDB container. Add a document to the DB via Mongo Express frontend. Get into the pod and verify the document's existence via *mongosh*.

1. Pull mongo related files from the repository

All files are pulled successfully.

2. Support yourself with the slides, README and knowledge from the internet.

Slides and readme files are reviewd, additionally we have uss internet for further understanding and delaling with errors.

3. Review all the files to learn the dependencies between Kubernetes objects

All files has been reviewed and the dependencies are understood.

4. Run the objects so you have both mongo-service and mongo-express-service deployed (list, pods, deployments, services and configmaps) - document with screenshots

```
PS C:\Users\dell\Downloads\4_microservices_development\day_3_kubernetes\hands-on> minikube start
minikube v1.30.1 on Microsoft Windows 10 Pro 10.0.19045.2965 Build 19045.2965
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" ...
This container is having trouble accessing https://registry.k8s.io
To pull new external images, you may need to configure a proxy: https://minikube.sigs.k8s.io/docs/reference/networking/proxy/
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
Donel kubectl is now configured to use "minikube" cluster and "default" namespace by default
PS C:\Users\dell\Downloads\4_microservices_development\day_3_kubernetes\hands-on> kubectl apply -f mongo-secret.yaml secret/mongodb-secret created
SC C:\Users\dell\Downloads\4_microservices_development\day_3_kubernetes\hands-on> kubectl apply -f mongo-configmap.yaml configmap/mongodb-configmap created
```

```
deployment.apps/mongo-deployment created
PS C:\Users\dell\Downloads\4_microservices_development\day_3_kubernetes\hands-on> kubectl apply -f mongo-db-service.yaml
error: the path "mongo-db-service.yaml" does not exist
PS C:\Users\dell\Downloads\4_microservices_development\day_3_kubernetes\hands-on> kubectl apply -f mongodb-service.yaml
PS C:\Users\dell\Downloads\4_microservices_development\day_3_kubernetes\hands-on> kubectl apply -f mongo-express-deploymen t.yaml
deployment.apps/mongo-express created
PS C:\Users\dell\Downloads\4_microservices_development\day_3_kubernetes\hands-on> kubectl apply -f mongo-express-service.y
aml
amı
service/mongo-express-service created
PS C:\Users\dell\Downloads\4_microservices_development\day_3_kubernetes\hands-on> kubectl get all
NAME
READY STATUS RESTARTS AGE
pod/mongo-deployment-85bbdc6549-z7x2b 0/1 ContainerCreating 0 77s
                                                                                            ContainerCreating 0
ContainerCreating 0
ErrImageNeverPull 0
ErrImageNeverPull 0
ErrImageNeverPull 0
ErrImageNeverPull 0
ErrImageNeverPull 0
pod/mongo-express-5bcd46fcff-j8zxx
pod/mydeployment-85495857f7-486j5
 pod/mydeployment-85495857f7-5vstg
pod/mydeployment-85495857f7-9qkbg
pod/mydeployment-85495857f7-fvwbf
pod/mydeployment-85495857f7-wn86w
                                                                                                                                                         12h
12h
12h
12h
                                                                                                                                                        PORT(S)
443/TCP
                                                             TYPE
ClusterIP
                                                                                           CLUSTER-IP
                                                                                                                           EXTERNAL-IP

        service/kubernetes
        ClusterIP
        10.96.0.1
        <none>

        service/mongo-express-service
        LoadBalancer
        10.97.15.198
        192.168.0

        service/mongo-service
        ClusterIP
        10.97.42.95
        <none>

        service/mywebapp
        LoadBalancer
        10.102.216.156
        <pending>

service/kubernetes
                                                                                                                           192.168.0.10 8080:30001/TCP
                                                                                                                                                         27017/TCP
80:30778/TCP
```

```
PS C:\Users\dell\Downloads\4_microservices_development> kubectl get pods

NAME READY STATUS RESTARTS AGE

mongo-deployment-85bbdc6549-z7x2b 1/1 Running 1 (9m29s ago) 54m

mongo-express-5bcd46fcff-j8zxx 1/1 Running 2 (8m30s ago) 53m
```

```
PS C:\Users\dell\Downloads\4_microservices_development> kubectl get deployments
NAME READY UP-TO-DATE AVAILABLE AGE
mongo-deployment 1/1 1 1 55m
mongo-express 1/1 1 1 54m
```

```
PS C:\Users\dell\Downloads\4 microservices development> kubectl get services
                                    CLUSTER-IP
 kubernetes
                      ClusterIP
                                    10.96.0.1
                                                                 443/TCP
                                                   <none>
                                                   192.168.0.10
                      LoadBalancer
 mongo-express-service
                                   10.97.15.198
                                                                8080:30001/TCP
                                                                                55m
                      ClusterIP
                                   10.97.42.95
 mongo-service
                                                   <none>
                                                                27017/TCP
                                                                                55m
                      LoadBalancer
                                                                 80:30778/TCP
                                   10.102.216.156
                                                   <pending>
 mywebapp
 PS C:\Users\dell\Downloads\4_microservices_development>
PS C:\Users\dell\Downloads\4_microservices_development> kubectl get configmaps
NAME
                      DATA AGE
                              13h
kube-root-ca.crt
mongodb-configmap
                              57m
PS C:\Users\dell\Downloads\4_microservices_development>
```

5. Run describe on a deployment, pod, service, configmap or choice. - document with screenshots

Note: Description text files are uploaded in the current directory named assignment 4.3 of my repo.

 Description of pods is stored in txt files named: mongo-deployments.txt and mongo-express.txt

```
mydeployment-8549585/f/-wn86W 0/1 ErrimageneverPull 0 13n

PS C:\Users\dell\Downloads\4_microservices_development> kubectl describe pod mongo-express-5bcd46fcff-j8zxx > mongo-express-5bcd
46fcff-j8zxx.txt

Wormal Starteu 14m kubelet Starteu container mongoub

PS C:\Users\dell\Downloads\4_microservices_development> kubectl describe pod mongo-deployment-85bbdc6549-z7x2b > mongo-deploymen
t.txt
```

 Description of services is stored in txt files named: ds_mongo-service.txt and ds_mongo-express-service.txt

```
PS C:\Users\dell\Downloads\4_microservices_development> kubectl describe service mongo-service > ds_mongo-service.txt

PS C:\Users\dell\Downloads\4_microservices_development> kubectl describe service mongo-express-service > ds_mongo-express-service

e.txt

PS C:\Users\dell\Downloads\4_microservices_development> []
```

 Description of deployment is stored in txt files named: dd_mongo-deployment.txt and dd_mongo-express.txt

```
PS C:\Users\dell\Downloads\4_microservices_development> kubectl describe deployments mongo-deployment > dd_mongo-deployment.txt

PS C:\Users\dell\Downloads\4_microservices_development> kubectl describe deployments mongo-express > dd_mongo-express.txt

PS C:\Users\dell\Downloads\4_microservices_development>
```

• Description of configmap is stored in txt file named: dc_mongodb-configmap.txt.

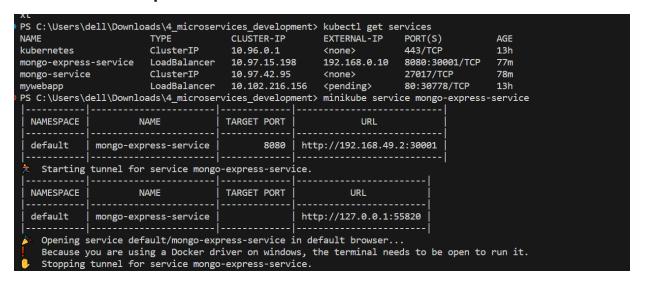
```
PS C:\Users\dell\Downloads\4_microservices_development> kubectl describe configmaps mongodb-configmap > dc_mongodb-configmap.txt
PS C:\Users\dell\Downloads\4_microservices_development> [
```

6. Show logs from a pod of choice - document with a screenshot

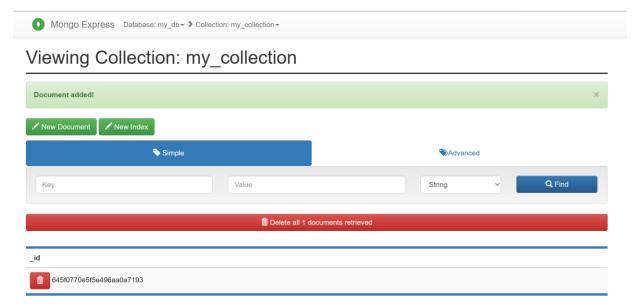
Logs of pod are stored in file named: logs-mongo-deployment.txt

```
PS C:\Users\dell\Downloads\4_microservices_development> kubectl logs mongo-deployment-85bbdc6549-z7x2b > logs_mongo-deployment.t xt
```

7. Run minikube service proper_service_name> to make the service appear in a browser and expose it for network traffic.



8. Add db, collection and a document in the WebUI.



- 9. Enter the pod for mongodb run mongosh to see if the document was created in collection in db.
- 10. You may need some additional parameters (and use the environment variables from the .yaml files.)

```
PS C:\Users\dell\Downloads\4_microservices_development> kubectl exec -it mongo-deployment-85bbdc6549-z7x2b -- sh
# mongosh -u $MONGO_INITDB_ROOT_USERNAME -p $MONGO_INITDB_ROOT_PASSWORD --authenticationDatabase admin
Current Mongosh Log ID: 645f14881d81546010d02ea5
Connecting to: mongodb://<credentials>@127.0.0.1:27017/?directConnection=true&serverSelectionTimeoutMS=2000&authSource=
admin&appName=mongosh+1.8.2
Using MongoDB: 6.0.5
Using MongoB: 1.8.2

For mongosh info see: https://docs.mongodb.com/mongodb-shell/
-----
The server generated these startup warnings when booting
2023-05-13T03:05:20.210+00:00: Using the XFS filesystem is strongly recommended with the WiredTiger storage engine. See http:
//dochub.mongodb.org/core/prodnotes-filesystem
2023-05-13T03:05:22.318+00:00: /sys/kernel/mm/transparent_hugepage/enabled is 'always'. We suggest setting it to 'never'
2023-05-13T03:05:22.318+00:00: vm.max_map_count is too low
```

```
The server generated these startup warnings when booting
2023-05-13T03:05:20.210+00:00: Using the XFS filesystem is strongly recommended with the WiredTiger storage engine. See http:
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2023-05-13T03:05:22.318+00:00: /sys/kernel/mm/transparent_hugepage/enabled is 'always'. We suggest setting it to 'never'
2023-05-13T03:05:22.318+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> show db
```

```
. SHOW UD IS HOL GELINEG
test> show dbs
admin 100.00 KiB
config
       84.00 KiB
local
        72.00 KiB
my_db
        48.00 KiB
test> use my_db
switched to db my_db
my_db> db.my_collection
my_db.my_collection
my_db> db.my_collection .find()
[ { _id: ObjectId("645f0770e5f5e496aa0a7193") } ]
my_db>
```