

Name: - Muhammad Huzaifa Waseem (2303-KHI-DEG-021)

Pair Partner 1: - Muhammad Faizan Rafique (2303.005.KHI.DEG)

Pair Partner 2: - Syed Muhammad Hammad Irshad(2303.KHI.DEG.032)

UNIT 4.3:

Assignment

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*.

```
EXPLORER  PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  COMMENTS
DATA_ENGINEERING_BOOTCAMP_2303
  > _vscode
  > tasks
    > 1_introduction
    > 2_mathematical_programmi...
    > 3_machine_learning_essenti...
    > 4_microservices_development
      > day_1_microservices
      > day_2_kafka
      > day_3_kubernetes
        > hands-on
          ! mongo-configmap.yaml
          ! mongo-express-deployment.y...
          ! mongo-secret.yaml
          ! mongo-deployment.yaml
          ! mongod-service.yaml
          > play_with_kubernetes
        > README.md
      > OUTLINE
      > TIMELINE

muhammadfaizanrafique@all-MS-7B35:~/data_engineering_bootcamp_2303/tasks/4_microservices_development/day_3_kubernetes/hands-on$ minikube start
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: storage-provisioner, default-storageclass
Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default
muhammadfaizanrafique@all-MS-7B35:~/data_engineering_bootcamp_2303/tasks/4_microservices_development/day_3_kubernetes/hands-on$ kubectl get pods
No resources found in default namespace.
muhammadfaizanrafique@all-MS-7B35:~/data_engineering_bootcamp_2303/tasks/4_microservices_development/day_3_kubernetes/hands-on$ kubectl apply -f mongo
mongo-configmap.yaml          mongod-service.yaml          mongo-express-deployment.yaml  mongo-secret.yaml
mongo-deployment.yaml        mongo-express-service.yaml
secret/mongodb-secret unchanged
muhammadfaizanrafique@all-MS-7B35:~/data_engineering_bootcamp_2303/tasks/4_microservices_development/day_3_kubernetes/hands-on$ kubectl apply -f mongod-deployment.yaml
deployment.apps/mongo-deployment created
muhammadfaizanrafique@all-MS-7B35:~/data_engineering_bootcamp_2303/tasks/4_microservices_development/day_3_kubernetes/hands-on$ kubectl apply -f mongod-service.yaml
service/mongo-service unchanged
muhammadfaizanrafique@all-MS-7B35:~/data_engineering_bootcamp_2303/tasks/4_microservices_development/day_3_kubernetes/hands-on$ kubectl apply -f mongo-configmap.yaml
configmap/mongodb-configmap unchanged
muhammadfaizanrafique@all-MS-7B35:~/data_engineering_bootcamp_2303/tasks/4_microservices_development/day_3_kubernetes/hands-on$ kubectl apply -f mongo-express-deployment.yaml
deployment.apps/mongo-express created
muhammadfaizanrafique@all-MS-7B35:~/data_engineering_bootcamp_2303/tasks/4_microservices_development/day_3_kubernetes/hands-on$ kubectl apply -f mongo-express-service.yaml
service/mongo-express-service unchanged
muhammadfaizanrafique@all-MS-7B35:~/data_engineering_bootcamp_2303/tasks/4_microservices_development/day_3_kubernetes/hands-on$ kubectl get pods
NAME                                READY  STATUS   RESTARTS  AGE
mongo-deployment-85bbdc6549-d262b  1/1    Running  0          71s
mongo-express-5bc46fcff-tgflb       1/1    Running  0          27s
muhammadfaizanrafique@all-MS-7B35:~/data_engineering_bootcamp_2303/tasks/4_microservices_development/day_3_kubernetes/hands-on$ kubectl exec -it mongo-deployment -- /bin/bash
Error from server (NotFound): pods "mongo-deployment" not found
muhammadfaizanrafique@all-MS-7B35:~/data_engineering_bootcamp_2303/tasks/4_microservices_development/day_3_kubernetes/hands-on$ kubectl exec -it mongo-deployment-85bbdc6549-d262b -- /bin/bash
root@mongo-deployment-85bbdc6549-d262b:/# ^C
root@mongo-deployment-85bbdc6549-d262b:/# exit
exit
command terminated with exit code 130
muhammadfaizanrafique@all-MS-7B35:~/data_engineering_bootcamp_2303/tasks/4_microservices_development/day_3_kubernetes/hands-on$ minikube service mongo-express-service
-----
| 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...
/snap/core20/current/lib/x86_64-linux-gnu/libstdc++.so.6: version 'GLIBCXX_3.4.29' not found (required by /lib/x86_64-linux-gnu/libproxy.so.1)
Failed to load module: /home/muhammadfaizanrafique/snap/code/common/.cache/gio/modules/libgio1libproxy.so
muhammadfaizanrafique@all-MS-7B35:~/data_engineering_bootcamp_2303/tasks/4_microservices_development/day_3_kubernetes/hands-on$ kubectl exec -it mongo-deployment-85bbdc6549-d262b -- /bin/bash
root@mongo-deployment-85bbdc6549-d262b:/# mongosh -u username -p password --authenticationDatabase taizandb
Current Mongosh Log ID: 645f88b3a1c1d41c3a2674
```

```
EXPLORER  PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  COMMENTS
DATA_ENGINEERING_BOOTCAMP_2303
  > .vscode
  > tasks
  > 1_introduction
  > 2_mathematical_programmi...
  > 3_machine_learning_essenti...
  > 4_microservices_development
  > day_1_microservices
  > day_2_kafka
  > day_3_kubernetes
    > hands-on
      ! mongo-configmap.yaml
      ! mongo-express-deployment.y...
      ! mongo-express-service.yaml
      ! mongo-secret.yaml
      ! mongodbd-deployment.yaml
      ! mongodbd-service.yaml
    > play_with_kubernetes
      @ README.md
      @ README.md

command terminated with exit code 130
muhammadfaizanrafique@all-MS-7035:~/data_engineering_bootcamp_2303/tasks/4_microservices_development/day_3_kubernetes/hands-on$ minikube service mongo-express-service
NAMESPACE  NAME          TARGET PORT  URL
default    mongo-express-service  8080         http://192.168.49.2:30001
/bin/bash
root@mongo-deployment-85bbdc6549-d262b:/# mongosh -u username -p password --authenticationDatabase faizandb
Connecting to:      mongodb://<credentials>@127.0.0.1:27017/?directConnection=true&serverSelectionTimeoutMS=2000&authSource=faizandb&appName=mongosh+1.8.2
Current Mongosh Log ID: 645f080a30c1cd41c43a2674
MongoserverError: Authentication failed.
root@mongo-deployment-85bbdc6549-d262b:/# mongosh -u username -p password --authenticationDatabase admin
Current Mongosh Log ID: 645f0815a44785ef2bf704ff
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 Mongosh:      1.8.2
For mongosh info see: https://docs.mongodb.com/mongodbd-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.

-----
The server generated these startup warnings when booting
2023-05-13T03:35:57.501+00:00: Using the XFS filesystem is strongly recommended with the WiredTiger storage engine. See http://dochub.mongodb.org/core/prodnotes-filesystem
2023-05-13T03:35:57.964+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> db.mycollection.find()

test> admin.mycollection.find({})
ReferenceError: admin is not defined
test> db.mycollection.find({})

test> db.mycollection.find({})
```

```
EXPLORER  PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  COMMENTS
DATA_ENGINEERING_BOOTCAMP_2303
  > .vscode
  > tasks
  > 1_introduction
  > 2_mathematical_programmi...
  > 3_machine_learning_essenti...
  > 4_microservices_development
  > day_1_microservices
  > day_2_kafka
  > day_3_kubernetes
    > hands-on
      ! mongo-configmap.yaml
      ! mongo-express-deployment.y...
      ! mongo-express-service.yaml
      ! mongo-secret.yaml
      ! mongodbd-deployment.yaml
      ! mongodbd-service.yaml
    > play_with_kubernetes
      @ README.md
      @ README.md

2023-05-13T03:35:57.501+00:00: Using the XFS filesystem is strongly recommended with the WiredTiger storage engine. See http://dochub.mongodb.org/core/prodnotes-filesystem
2023-05-13T03:35:57.964+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> db.mycollection.find()

test> admin.mycollection.find({})
ReferenceError: admin is not defined
test> db.mycollection.find({})

test> db.mycollection.find({})

test> db.mycollection.find({})
















test> use admin
switched to db admin
admin> show collections
test
system.users
system.version
admin> db.test.find()
{
  _id: ObjectId("645f08d0299b9e0007246a5b"),
  fruit: 'Apple',
  size: 'Large',
  color: 'Red'
},
{
  _id: ObjectId("645f08e5299b9e0007246a5c"),
  fruit: 'Apple',
  size: 'Large',
  color: 'Red'
},
{
  _id: ObjectId("645f08fe299b9e0007246a5d"),
  fruit: 'Banana',
  size: 'Large',
  color: 'yellow'
}
}
admin>
```

Databases			Database Name	+ Create Database
	View	admin		Del
	View	config		Del
	View	faizandb		Del
	View	local		Del

Server Status

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

Viewing Database: admin

Collections					Collection Name	+ Create collection
				system.users		Del
				system.version		Del
				test		Del

Database Stats	
Collections (incl. system.namespaces)	3
Data Size	848 Bytes
Storage Size	77.8 KB
Avg Obj Size #	141 Bytes
Objects #	6
Indexes #	4
Index Size	98.3 KB

← → 🔒 Not secure | 192.168.49.2:30001/db/admin/test

Mongo Express Database: admin → Collection: test

Viewing Collection: test

Document added!

New Document New Index

Simple Advanced

Key Value String Find

Delete all 3 documents retrieved

_id	fruit	size	color
645f08d0299b9e0007240a5b	Apple	Large	Red
645f08e5299b9e0007246a5c	Apple	Large	Red
645f08fe299b9e0007246a5d	banana	Large	yellow

Rename Collection

admin : test Rename

Expian

Let's embark on an exciting adventure into the world of Kubernetes! We start with "**minikube start**," which wakes up Minikube and makes it powerful. Then we use "**kubectl get pods**" to see a list of running pods. With "**kubectl apply -f**," we bring our files to life, like building blocks. We discover "**minikube service mongo-express-service**," a special door to Mongo Express. Using "**kubectl exec -it mongo-deployment-*** --/bin/bash**," we enter the container and find secrets inside. Finally, "**db.mycollection.find()**" helps us find treasures in the database. It's like exploring a magical land where we can create, discover, and learn!