Project #1 – Docker and Kubernetes

Filipa Capela e Tiago Conceição

Docker Assignments (Assignment #1 & #2)

Steps taken assignment 1:

- Pull the MongoDB image from Docker Hub;
- Build each image individually;
- Run each image individually;

Steps taken assignment 2:

- Create the DockerFile for backend/frontend;
- Modify the backend app.js file;
- Create the networking;
- Build the images;
- Run the images with the persist data;

Commands:

```
docker pull mongo

docker network create back-db

docker run -it -v mongo_teste:/data/db --name mongodb --rm --network back-db mongo:4.4.6

cd .\multi-container-app\frontend

docker build -t frontend .

docker run -p 3000:3000 frontend

cd ..

cd .\multi-container-app\backend

docker build -t backend .

docker run -it -v backend_teste:/logs --name container_backend --rm --network back-db -p 80:80 backend
```

Docker Assignments (Assignment #3)

Steps taken assignment 3:

- Using the images built previously, those were pushed to docker hub;
- Create Docker Compose file;
- Run the Docker Compose file;

Commands:

```
docker login --username=tiagoconceicao

docker images

docker build -t tiagoconceicao/backend .

docker build -t tiagoconceicao/frontend .

docker push tiagoconceicao/frontend

docker tag 74c4171329c4 tiagoconceicao/mongo

docker push tiagoconceicao/mongo

docker compose up

kubectl config use-context docker-desktop
```

Docker Assignments (Assignment #4 & #5)

Steps taken assignment 4:

- Install kubernetes (minikube)
- Create the deployment files Backend/Frontend/Mongo;
- Create the services files Backend/Frontend/Mongo;
- Modify the backend app.js file;
- Run the Frontend;

Steps taken assignment 5:

- Create the file persistent volume for the backend;
- Create the file persistent volume claim for the backend;
- Create the file persistent volume for the mongo;
- Create the file persistent volume claim for the mongo;
- Modify each deployment file;

Commands:

Minikube start

docker login --username=tiagoconceicao

kubectl apply -f deployment.yaml

kubectl apply -f service.yaml

kubectl apply -f deployment-back.yaml

kubectl apply -f service-back.yaml

kubectl apply -f deployment-front.yaml

kubectl apply -f service-front.yaml

kubectl get pods

kubectl get deployments

Kubectl get services

Minikube service service-front.yaml