

ATYPON

Containerization Project

Due Oct 7

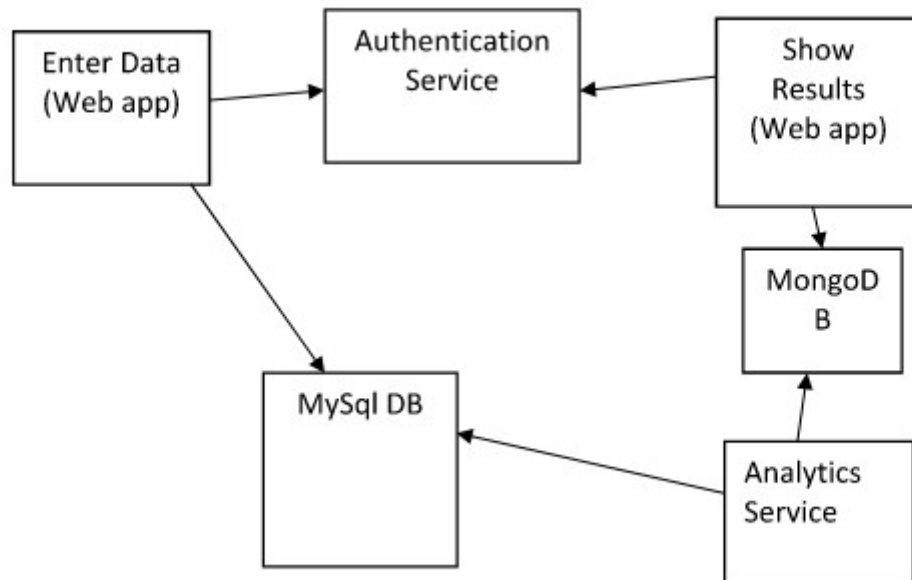
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instructor:

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- Dr.Fahed Jubair

Problem Statement: :

Build a containerized microservices data collection and analytics system as shown :



I will follow this scenario for building the system :

checking authentication (username and pass) →
Enter Data (your grades) → send data to mysql database → analytics
service collect data from my sql then do sum analytics (max min average)
for each record and send it to MongoDB service .

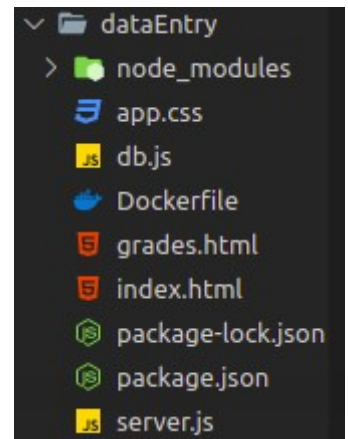
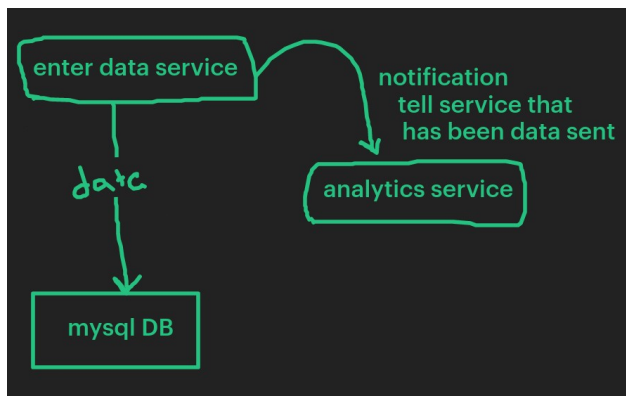
Let us building each service :

1- Enterdata(webapp) : allows user to enter grades and send it to mysql DB .

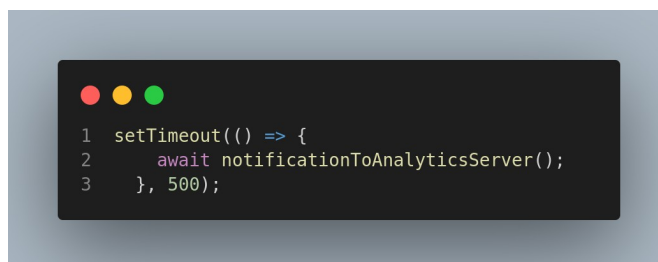
server.js :

prepare :

- routers
- post request to authentication service
- Post data (grades) to mysql db service
- send notification to analytics service to update collections in mongoDB service



to ensure data send to mysql before send notification I create some delay



db.js : config connection to mysql.

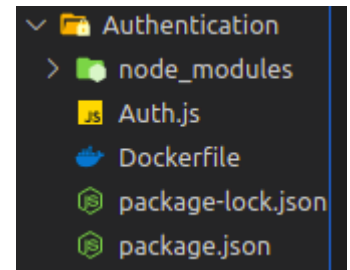
Dockerfile : to build image enter data.

2- Authentication service : checking validate user .

Auth.js :

- handle post route and response contains json data for validate.

Dockerfile : to build image authentication service .



3- Analytics services :

mongo.py :

- insert data to mongo DB .
- fetch all data from mongo DB .

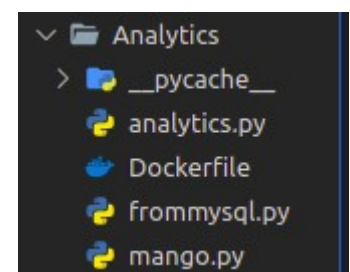
frommysql :

- fetch all data from mysql DB.

Analytics.py :

- check if any record in mysql DB exist in mongo and insert it if not exist into mongo DB after manipulate data to insert it as max min average .

Dockerfile : to build image analytics services.

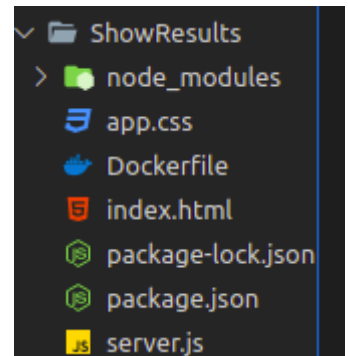


4 – Show Result service :

server.js :

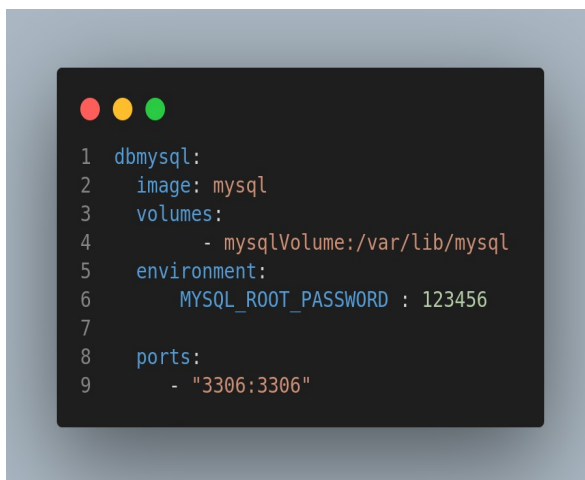
- post request to authentication service .
- post request to fetch data from mysql .

Dockerfile : to build image show result service.



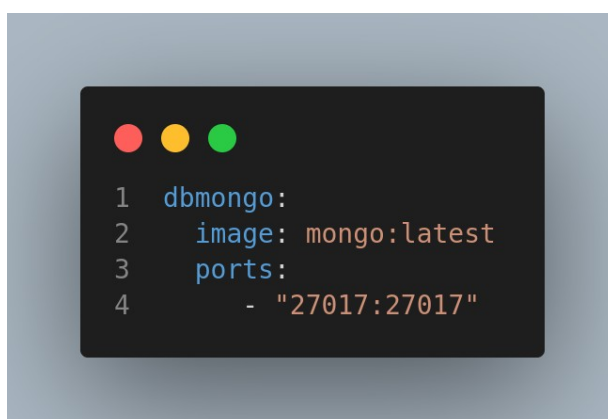
5 - MySql DB service :

build it in docker compose file .



6 - MongoDB service:

build it in docker compose file .

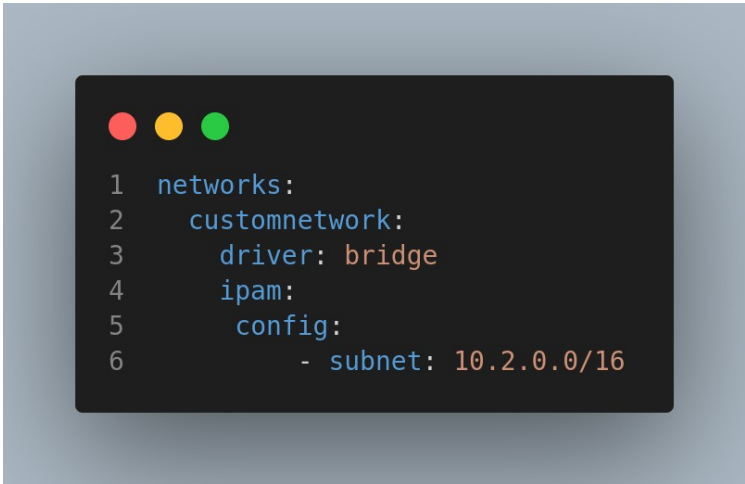


Docker Compose :
in docker-compose.yml :

- point to Dockerfile to **build** image for each service.
- set Port number to containers
host port ← port:port → internal port in container

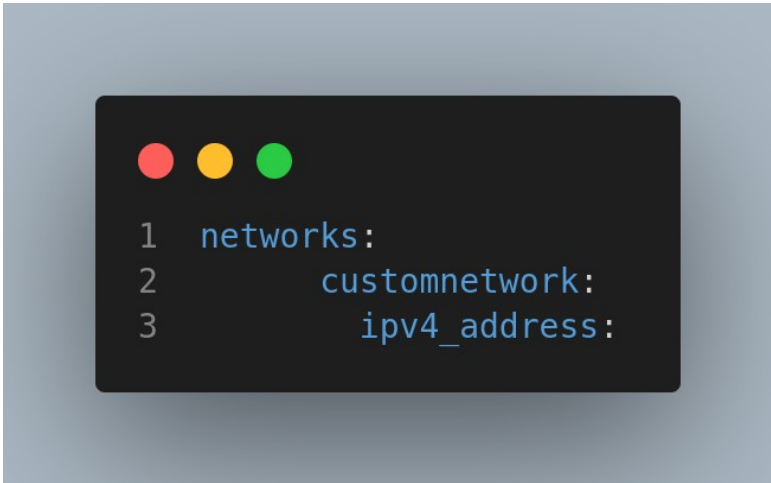
- Network :

create custom network and set network to 10.2.0.0 and mask to 255.255.0.0



```
1 networks:
2   customnetwork:
3     driver: bridge
4     ipam:
5       config:
6         - subnet: 10.2.0.0/16
```

given each service static ip address , that help to connection between services .



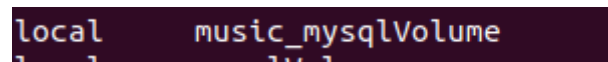
```
1 networks:
2   customnetwork:
3     ipv4_address:
```

- volume :

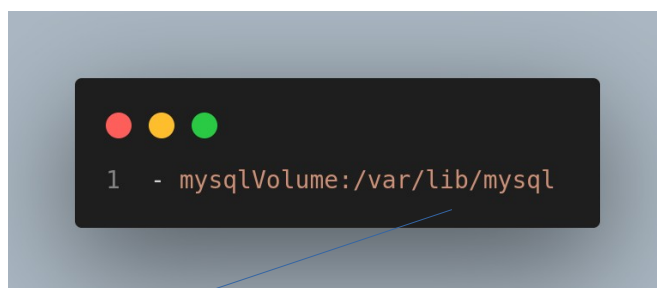
create volume for mysql db in docker-compose.yml :



```
1 volumes:
2   mysqlVolume:
```



```
local      music_mysqlVolume
```



```
1 - mysqlVolume:/var/lib/mysql
```

location where mysql in container store data and link it to mysqlvolume .

Also , I'm set database and table in volume manually .

[end]