VDO
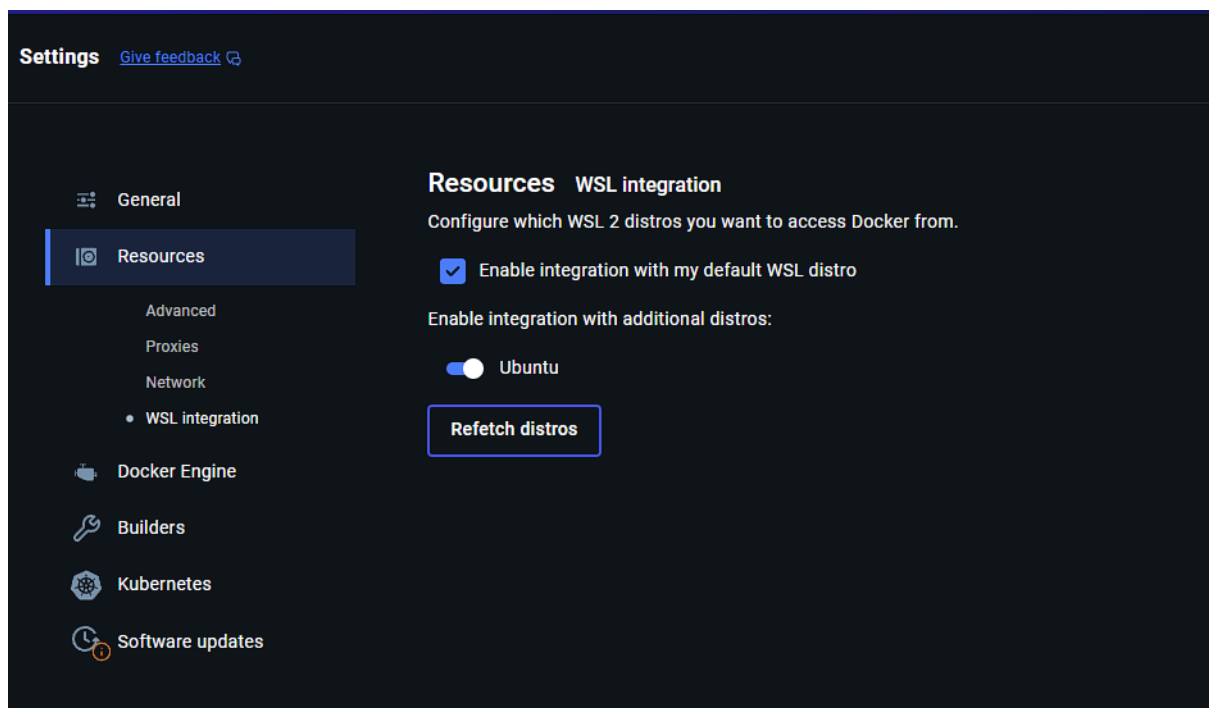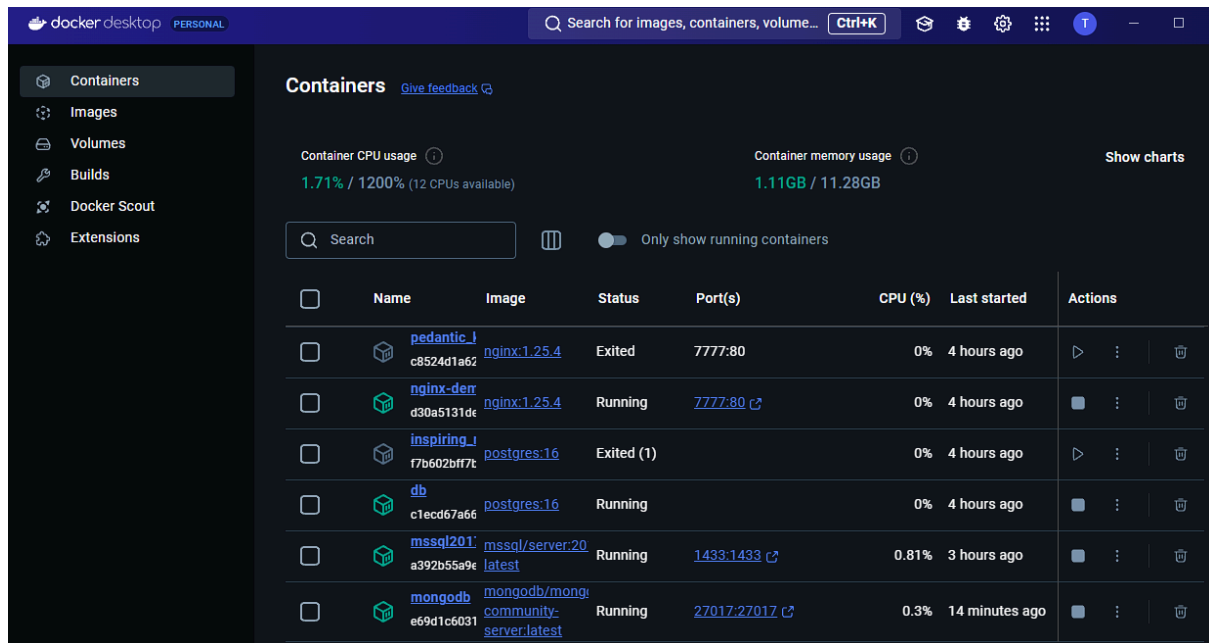## ติดตั้ง WSL แล้วเช็ค version

```
PS C:\Users\WINDOWS 10> wsl -v
WSL version: 2.2.4.0
Kernel version: 5.15.153.1-2
WSLg version: 1.0.61
MSRDC version: 1.2.5326
Direct3D version: 1.611.1-81528511
DXCore version: 10.0.26091.1-240325-1447.ge-release
Windows version: 10.0.22631.4317
PS C:\Users\WINDOWS 10> wsl -l -v
  NAME              STATE           VERSION
* docker-desktop    Running         2
  Ubuntu            Running         2
PS C:\Users\WINDOWS 10> |
```

ตั้งค่า ใช้ wsl ใน docker
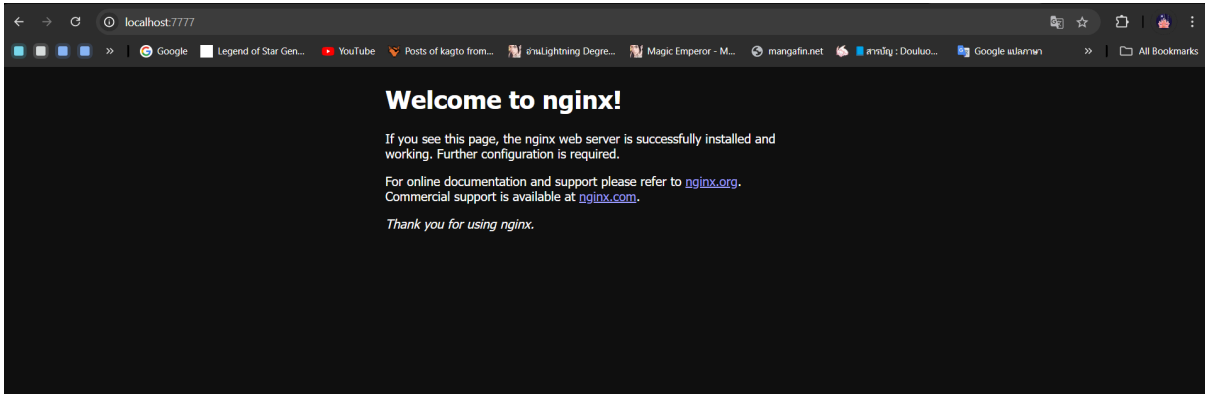
หน้าของ docker

ทำการ pull nginx

```
thanaphon_pa66@LAPTOP-OSE43R21:~/dockerlab1$ docker image pull nginx:1.25.4
1.25.4: Pulling from library/nginx
13808c22b207: Pull complete
6fcdffcd79f0: Pull complete
fbf231d461b3: Pull complete
c9590dd9c988: Pull complete
b4033143d859: Pull complete
abaefc5fcbde: Pull complete
bcef83155b8b: Pull complete
Digest: sha256:9ff236ed47fe39cf1f0acf349d0e5137f8b8a6fd0b46e5117a401010e56222e1
Status: Downloaded newer image for nginx:1.25.4
docker.io/library/nginx:1.25.4
thanaphon_pa66@LAPTOP-OSE43R21:~/dockerlab1$ docker image
```

รันคอนเทนเนอร์ Nginx

```
thanaphon_pa66@LAPTOP-OSE43R21:~/dockerlab1$ docker container run -d nginx:1.25.4
8b9de74af35d08b6461efb00305dcf91aca89232827d7a0a1fad43d00664fbbe
thanaphon_pa66@LAPTOP-OSE43R21:~/dockerlab1$ docker container run  nginx:1.25.4
/docker-entrypoint.sh: /docker-entrypoint.d/ is not empty, will attempt to perform configur
/docker-entrypoint.sh: Looking for shell scripts in /docker-entrypoint.d/
/docker-entrypoint.sh: Launching /docker-entrypoint.d/10-listen-on-ipv6-by-default.sh
10-listen-on-ipv6-by-default.sh: info: Getting the checksum of /etc/nginx/conf.d/default.co
10-listen-on-ipv6-by-default.sh: info: Enabled listen on IPv6 in /etc/nginx/conf.d/default.
/docker-entrypoint.sh: Sourcing /docker-entrypoint.d/15-local-resolvers.envsh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/20-envsubst-on-templates.sh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/30-tune-worker-processes.sh
/docker-entrypoint.sh: Configuration complete; ready for start up
2024/10/11 04:39:55 [notice] 1#1: using the "epoll" event method
2024/10/11 04:39:55 [notice] 1#1: nginx/1.25.4
```

รันคำสั่ง ใช้ port 7777

```
thanaphon_pa66@LAPTOP-OSE43R21:~/dockerlab1$ docker container ps -a
CONTAINER ID   IMAGE     COMMAND    CREATED   STATUS    PORTS      NAMES
thanaphon_pa66@LAPTOP-OSE43R21:~/dockerlab1$ docker container run -d -p 7777:80  nginx:1.25.4
510ce17d015895e6d889a6480cd8f1d77955e3013ca8646a61109ea551b09866
thanaphon_pa66@LAPTOP-OSE43R21:~/dockerlab1$ docker container ps -a
CONTAINER ID   IMAGE         COMMAND              CREATED           STATUS             PORTS                  NAMES
510ce17d0158   nginx:1.25.4  "/docker-entrypoint.…"  About a minute ago  Up About a minute  0.0.0.0:7777->80/tcp  suspicious_williams
thanaphon_pa66@LAPTOP-OSE43R21:~/dockerlab1$
```


Clone ENGSE207 Docker git repository ลงมา แล้วทำตามขั้นตอนที่ผ่านมาใหม่

```
README.md   docker   docker-compose   docker-image   dockerfile   mssql_scripts
thanaphon_pa66@LAPTOP-OSE43R21:~/engse207-docker$ ls -la
total 36
drwxr-xr-x   8 thanaphon_pa66 thanaphon_pa66 4096 Oct 18 13:22 .
drwxr-x---  15 thanaphon_pa66 thanaphon_pa66 4096 Oct 18 11:10 ..
drwxr-xr-x   8 thanaphon_pa66 thanaphon_pa66 4096 Oct 18 13:20 .git
-rw-r--r--   1 thanaphon_pa66 thanaphon_pa66  390 Oct 18 09:39 README.md
drwxr-xr-x   2 thanaphon_pa66 thanaphon_pa66 4096 Oct 18 09:39 docker
drwxr-xr-x   9 thanaphon_pa66 thanaphon_pa66 4096 Oct 18 09:39 docker-compose
drwxr-xr-x   2 thanaphon_pa66 thanaphon_pa66 4096 Oct 18 10:14 docker-image
drwxr-xr-x   3 thanaphon_pa66 thanaphon_pa66 4096 Oct 18 09:39 dockerfile
drwxr-xr-x   2 thanaphon_pa66 thanaphon_pa66 4096 Oct 18 13:24 mssql_scripts
thanaphon_pa66@LAPTOP-OSE43R21:~/engse207-docker$
```

ติดตั้ง MSSQL Image and Configuration
pull image

```
thanaphon_pa66@LAPTOP-OSE43R21:~/engse207-docker/docker-image$ docker pull mcr.microsoft.com/mssql/server:2017-latest
```

Config SA Password

```
7 hours ago                    recursing_manavira
thanaphon_pa66@LAPTOP-OSE43R21:~/engse207-docker/docker-image$ docker run -e "ACCEPT_EULA=Y" -e "MSSQL_SA_PASSWORD=P@ssw0rd" -p 1433:1433 --name mssql2017 -d mcr.microsoft.com/mssql/server:2017-latest
```

เข้าไปที่ mssql command line

```
thanaphon_pa66@LAPTOP-OSE43R21:~/engse207-docker/docker-image$ docker exec -it mssql2017 "bash"
root@a392b55a9ec8:/# /opt/mssql-tools/bin/sqlcmd
Sqlcmd: Error: Microsoft ODBC Driver 17 for SQL Server : SSPI Provider: No Kerberos credentials available (default cache: FILE:/tmp/krb5cc_0).
Sqlcmd: Error: Microsoft ODBC Driver 17 for SQL Server : Cannot generate SSPI context.
root@a392b55a9ec8:/# docker exec -t mssql2017 cat /var/opt/mssql/log/errorlog | grep connection
bash: docker: command not found
root@a392b55a9ec8:/# /opt/mssql-tools/bin/sqlcmd -S localhost -U sa -P P@ssw0rd
1> SELECT Name from sys.databases;
2> go
Name
-----------------------------------------------------------------------------------------------------------------------------------------
master
tempdb
model
msdb

(4 rows affected)
1>
```

สร้าง Database

```
root@a392b55a9ec8:/# docker exec -t mssql2017 cat /var/opt/mssql/log/errorlog | grep connection
bash: docker: command not found
root@a392b55a9ec8:/# /opt/mssql-tools/bin/sqlcmd -S localhost -U sa -P P@ssw0rd
1> SELECT Name from sys.databases;
2> go
Name
--------------------------------------------------------------------------------
master
tempdb
model
msdb

(4 rows affected)
1> CREATE DATABASE team6_web_labDB;
2> go
1> use team6_web_labDB;
2> go
Changed database context to 'team6_web_labDB'.
1> SELECT Name from sys.Databases;
2> go
Name
--------------------------------------------------------------------------------
master
tempdb
model
msdb
team6_web_labDB

(5 rows affected)
1> use team6_web_labDB;
2> go
Changed database context to 'team6_web_labDB'.
1> CREATE TABLE dbo.Inventory ( id INT, name NVARCHAR(50), quantity INT,  PRIMARY KEY (id));
2> go
1> INSERT INTO dbo.Inventory VALUES (1, 'banana', 150);
2> INSERT INTO dbo.Inventory VALUES (2, 'orange', 154);
3> go

(1 rows affected)

(1 rows affected)
1> SELECT * FROM dbo.Inventory;
2> go
id          name                                               quantity
----------- -------------------------------------------------- -----------
          1 banana                                                     150
          2 orange                                                     154

(2 rows affected)
```

Import SQL Data
Import data โดยเรียกโปรแกรม mssqlcmd

```
thanaphon_pa66@LAPTOP-OSE43R21:~/engse207-docker/docker-image$ docker cp ~/engse207-docker/mssql_scripts/dbo.OnlineAgents.Table.sql a392b55a9ec8
:/home
Successfully copied 74.2kB to a392b55a9ec8:/home
thanaphon_pa66@LAPTOP-OSE43R21:~/engse207-docker/docker-image$ docker exec -it mssql2017 "bash"
root@a392b55a9ec8:/# /opt/mssql-tools/bin/sqlcmd -S localhost -U sa -p -d team6_web_labDB -i /home/dbo.OnlineAgents.Table.sql
Password:

Network packet size (bytes): 4096
1 xact[s]:
Clock Time (ms.): total          1  avg   1.0 (1000.0 xacts per sec.)

Network packet size (bytes): 4096
1 xact[s]:
Clock Time (ms.): total          1  avg   1.0 (1000.0 xacts per sec.)

Network packet size (bytes): 4096
1 xact[s]:
Clock Time (ms.): total          8  avg   8.0 (125.0 xacts per sec.)

(1 rows affected)

(1 rows affected)

(1 rows affected)

(1 rows affected)

(1 rows affected)
```

```
root@a392b55a9ec8:/# /opt/mssql-tools/bin/sqlcmd -S localhost -U sa -P P@ssw0rd -d team6_web_labDB -i /home/dbo.OnlineAgents.Table.sql
Msg 2714, Level 16, State 6, Server a392b55a9ec8, Line 1
There is already an object named 'OnlineAgents' in the database.
Msg 2627, Level 14, State 1, Server a392b55a9ec8, Line 3
Violation of PRIMARY KEY constraint 'PK_OnlineAgents'. Cannot insert duplicate key in object 'dbo.OnlineAgents'. The duplicate key value is (1).
The statement has been terminated.
SqlState 24000, Invalid cursor state
SqlState 24000, Invalid cursor state
SqlState 24000, Invalid cursor state
SqlState 24000, Invalid cursor state
root@a392b55a9ec8:/# /opt/mssql-tools/bin/sqlcmd -S localhost -U sa -P P@ssw0rd
1> use team6_web_labDB;
2> go
Changed database context to 'team6_web_labDB'.
1> SELECT * FROM dbo.OnlineAgents;
2> go
OnlineAgent_id agent_id      agent_code          DIDQueueID StartOnline              uuid                                              AgentName
                                                 AgentStatus IsLogin LastUpdated
-------------- ----------- -------------------- ----------- ------------------------ ------------------------------------------------- ----------------
------------------------------------------------- ----------- ------- --------------------
             1      NULL 9999                         NULL 2023-08-31 13:56:26.033 cb40f193-1317-4b17-a360-506cd89700f7              Dev2
                                                1       1          2023-08-31 13:56:26.033
             2      NULL 3891                         NULL 2023-09-05 14:27:35.483 0a9c6366-5ec7-4727-8698-045b977afe61              Dev2
                                                1       1          2023-09-05 14:27:35.483
             3      NULL 9998                         NULL 2023-09-07 14:05:20.360 5ac956de-560b-4888-8b69-d77dfdf3191d              Dev2
                                                1       1          2023-09-07 14:05:20.360
             4      NULL 99998                        NULL 2023-09-08 10:08:16.063 b195cf34-b69a-46c8-8ef6-f4d31429bae8              Dev2
                                                1       1          2023-09-08 10:08:16.063
             5      NULL 3723                         NULL 2023-09-13 13:45:22.167 7cd54ecf-f29f-44cf-8e84-17a86151b3c2              Dev2
                                                1       1          2023-09-13 13:45:22.167
             6      NULL 3748                         NULL 2023-09-13 17:20:07.890 db3197c3-5624-41bd-8655-916a5a1040f7              Dev2
                                                1       1          2023-09-13 17:20:07.890
             7      NULL 3746                         NULL 2023-09-13 17:20:13.613 01b735a3-9bfb-4246-ae67-06d2177a76cd              Dev2
                                                1       1          2023-09-13 17:20:13.613
             8      NULL 3773                         NULL 2023-09-13 17:20:55.317 ec1fbb94-fc47-4fe0-84bf-a8cf292e6a04              Dev2
                                                1       1          2023-09-13 17:20:55.317
             9      NULL 3772                         NULL 2023-09-13 17:21:01.337 2b61affc-0940-46dd-ad36-7122210208de              Dev2
                                                1       1          2023-09-13 17:21:01.337
            10      NULL 3822                         NULL 2023-09-13 17:21:14.643 585bea48-8fc4-4e8f-964a-347f72e0649f              Dev2
```

ติดตั้ง MongoDB Image and Configuration

```
thanaphon_pa66@LAPTOP-OSE43R21:~/engse207-docker/docker-image$ docker pull mongodb/mongodb-community-server:latest
latest: Pulling from mongodb/mongodb-community-server
6414378b6477: Pull complete
8708c614f493: Pull complete
09968d8401ef: Pull complete
dcf09fdad408: Pull complete                                                                   745594abef4d: Pull complete
0072679c884c: Pull complete                                                                   99595a08a5a2: Pull complete
0a9fc7c47cb6: Pull complete
5016af33ff0e: Pull complete
4f4fb700ef54: Pull complete
792dee6d1c5e: Pull complete
Digest: sha256:79b127bd52a990875d12d224f24f6d34d5437a36c3378249535244f7b9c5bd49
Status: Downloaded newer image for mongodb/mongodb-community-server:latest
docker.io/mongodb/mongodb-community-server:latest
thanaphon_pa66@LAPTOP-OSE43R21:~/engse207-docker/docker-image$ docker run --name mongodb -p 27017:27017 -d mongodb/mongodb-community-server:latest
e69d1c6031d82c7cb5b79da243fed6712a9f58583a05fdb742d552ad445005e3
```

```
thanaphon_pa66@LAPTOP-OSE43R21:~/engse207-docker/docker-image$ docker exec -it mongodb mongosh
Current Mongosh Log ID: 67120c1424802b3b2efe6910
Connecting to:          mongodb://127.0.0.1:27017/?directConnection=true&serverSelectionTimeoutMS=2000&appName=mongosh+2.3.2
Using MongoDB:          7.0.14
Using Mongosh:          2.3.2

For mongosh info see: https://www.mongodb.com/docs/mongodb-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
   2024-10-18T07:15:36.108+00:00: Using the XFS filesystem is strongly recommended with the WiredTiger storage engine. See http://dochub.mongodb.org/core/prodnotes-filesystem
   2024-10-18T07:15:36.701+00:00: Access control is not enabled for the database. Read and write access to data and configuration is unrestricted
   2024-10-18T07:15:36.701+00:00: /sys/kernel/mm/transparent_hugepage/enabled is 'always'. We suggest setting it to 'never' in this binary version
   2024-10-18T07:15:36.701+00:00: vm.max_map_count is too low
------

test> show dbs
admin   40.00 KiB
config  60.00 KiB
local   40.00 KiB
```

Create Database

```
test> use wallboarddb
switched to db wallboarddb
wallboarddb> db.createUser({user: "wallboarduser",pwd: "WB1qazxsw2",roles: [ { role: "readWrite", db: "wallboarddb" } ]})
{ ok: 1 }
wallboarddb> show users
[
  {
    _id: 'wallboarddb.wallboarduser',
    userId: UUID('de2037d5-206e-45e5-bb1c-efd65943fdb1'),
```

```
    user: 'wallboarduser',
    db: 'wallboarddb',
    roles: [ { role: 'readWrite', db: 'wallboarddb' } ],
    mechanisms: [ 'SCRAM-SHA-1', 'SCRAM-SHA-256' ]
  }
]
```

show database list after created

```
wallboarddb> use admin
switched to db admin
admin> show dbs
admin   132.00 KiB
config   60.00 KiB
local    40.00 KiB
admin> use wallboarddb
```

create example collection (Table)

```
wallboarddb> db.createCollection("log", { capped : true, size : 5242880, max : 5000 } )
{ ok: 1 }
wallboarddb> db.log.insertOne({ capped : true,size : 5242880,  max : 5000  })
{
  acknowledged: true,
  insertedId: ObjectId('67120db224802b3b2efe6911')
}
```

Then select all records of "log"collection (Table) on wallboarddb

```
wallboarddb> db.log.find()
[
  {
    _id: ObjectId('67120db224802b3b2efe6911'),
    capped: true,
    size: 5242880,
    max: 5000
  }
]
wallboarddb> show collections
log
wallboarddb> show dbs
admin        132.00 KiB
config        92.00 KiB
local         40.00 KiB
wallboarddb    8.00 KiB
wallboarddb>
```

ติดตั้ง Nodejs Image and Configuration

```
thanaphon_pa66@LAPTOP-OSE43R21:~/engse207-docker/docker-image$ docker pull node:20
20: Pulling from library/node
7d98d813d54f: Pull complete
d0c5f3b3f727: Pull complete
8ba0b3d08b81: Pull complete
27bc85537ac7: Pull complete
5f57b3eca258: Pull complete
898ee3ab8d89: Pull complete
2c430d81b800: Pull complete
e07e01c8fd93: Pull complete
Digest: sha256:196a5fcd13db4362fb9c0ec5391db36ec954c65d6b0d0e5d37f59c7dc9920690
Status: Downloaded newer image for node:20
docker.io/library/node:20
thanaphon_pa66@LAPTOP-OSE43R21:~/engse207-docker/docker-image$ docker image ls
REPOSITORY                          TAG           IMAGE ID        CREATED         SIZE
mongodb/mongodb-community-server    latest        1839812ea932    25 hours ago    1.2GB
node                                20            69f1a5267bce    13 days ago     1.1GB
postgres                            16            bc02d8216d73    3 weeks ago     432MB
mcr.microsoft.com/mssql/server      latest        b2761593c693    3 weeks ago     1.59GB
mcr.microsoft.com/mssql/server      2017-latest   837b47c7b5e8    3 weeks ago     1.33GB
nginx                               1.25.4        c613f16b6642    8 months ago    187MB
```

```
thanaphon_pa66@LAPTOP-OSE43R21:~/engse207$ git clone https://github.com/se-rmutl/engse207.git
Cloning into 'engse207'...
remote: Enumerating objects: 715, done.
remote: Counting objects: 100% (54/54), done.
remote: Compressing objects: 100% (43/43), done.
remote: Total 715 (delta 15), reused 42 (delta 9), pack-reused 661 (from 1)
Receiving objects: 100% (715/715), 7.06 MiB | 1.50 MiB/s, done.
Resolving deltas: 100% (200/200), done.
thanaphon_pa66@LAPTOP-OSE43R21:~/engse207$ ls
docker   engse207
```

```
thanaphon_pa66@LAPTOP-OSE43R21:~$ cd engse207
thanaphon_pa66@LAPTOP-OSE43R21:~/engse207$ cd engse207/
thanaphon_pa66@LAPTOP-OSE43R21:~/engse207/engse207$ ls
README.md   microservices   mvc_architecture   n-tier_architecture
thanaphon_pa66@LAPTOP-OSE43R21:~/engse207/engse207$ cd n-tier_architecture/
thanaphon_pa66@LAPTOP-OSE43R21:~/engse207/engse207/n-tier_architecture$ ls
README.md   backend   frontend
thanaphon_pa66@LAPTOP-OSE43R21:~/engse207/engse207/n-tier_architecture$ cd backend/
thanaphon_pa66@LAPTOP-OSE43R21:~/engse207/engse207/n-tier_architecture/backend$ cd endpoint-api/
thanaphon_pa66@LAPTOP-OSE43R21:~/engse207/engse207/n-tier_architecture/backend/endpoint-api$
```

```
thanaphon_pa66@LAPTOP-OSE43R21:~/engse207/engse207/n-tier_architecture/backend/endpoint-api$  npm install
npm warn deprecated har-validator@5.1.5: this library is no longer supported
npm warn deprecated uuid@3.4.0: Please upgrade  to version 7 or higher.  Older versions may use Math.random() in certain circumstances, which is known to be problematic.  See https://v8.de
```

build to docker container