ภาพรวมของโปรเจ็ค

https://github.com/pomntv/nantavit_agnos_backend

- ใช้ Go with Gin framework ในการจัดการ API ทำงานบน port 3006
- ใช้ Nginx ในการ reverse proxy จาก port 3006 ไปยัง 80
- ใช้ Postgresql ในการเก็บ log request , response ที่พอร์ต 5432
- ใช้ Docker รัน Nginx Postgresql และ backend (ใช้ Air เพื่อ hot reload)

run docker compose up

```
C:\Users\Pom\Desktop\nantavit_agnos_backend>docker compose up
[+] Running 3/0
 ✓ Container nantavit_agnos_backend-web-1    Created                                                                                    0.0s
 ✓ Container nantavit_agnos_backend-db-1     Created                                                                                    0.0s
 ✓ Container nantavit_agnos_backend-nginx-1  Created                                                                                    0.0s
Attaching to db-1, nginx-1, web-1
db-1    |
db-1    | PostgreSQL Database directory appears to contain a database; Skipping initialization
db-1    |
db-1    | 2024-02-20 08:40:07.382 UTC [1] LOG:  starting PostgreSQL 16.2 on x86_64-pc-linux-musl, compiled by gcc (Alpine 13.2.1_git20231014) 13.2.1 20231014, 64-bit
db-1    | 2024-02-20 08:40:07.382 UTC [1] LOG:  listening on IPv4 address "0.0.0.0", port 5432
db-1    | 2024-02-20 08:40:07.382 UTC [1] LOG:  listening on IPv6 address "::", port 5432
db-1    | 2024-02-20 08:40:07.386 UTC [1] LOG:  listening on Unix socket "/var/run/postgresql/.s.PGSQL.5432"
db-1    | 2024-02-20 08:40:07.391 UTC [24] LOG:  database system was shut down at 2024-02-20 07:56:38 UTC
db-1    | 2024-02-20 08:40:07.397 UTC [1] LOG:  database system is ready to accept connections
web-1   |
web-1   |    __       __  __
web-1   |   / /\     |_ |_ |_)
web-1   |  /_/--\    |_ |_ |_ \_ v1.49.0, built with Go go1.19
web-1   |
web-1   | mkdir /usr/src/app/tmp
web-1   | watching .
web-1   | watching cmd
web-1   | watching database
web-1   | watching handlers
web-1   | watching models
web-1   | !exclude tmp
web-1   | building...
web-1   | running...
web-1   | 2024/02/20 08:40:09 connected
web-1   | 2024/02/20 08:40:09 running migrations
web-1   |
web-1   | 2024/02/20 08:40:09 /usr/src/app/database/database.go:41
web-1   | [19.421ms] [rows:1] SELECT count(*) FROM information_schema.tables WHERE table_schema = CURRENT_SCHEMA() AND table_name = 'password_recommendations' AND table_type = 'BASE TABLE'
web-1   |
web-1   | 2024/02/20 08:40:09 /usr/src/app/database/database.go:41
web-1   | [0.462ms] [rows:1] SELECT CURRENT_DATABASE()
web-1   |
web-1   | 2024/02/20 08:40:09 /usr/src/app/database/database.go:41
web-1   | [16.310ms] [rows:-] SELECT c.column_name, c.is_nullable = 'YES', c.udt_name, c.character_maximum_length, c.numeric_precision, c.numeric_precision_radix, c.numeric_scale, c.datetime_precision, 8
```

docker ps

```
51348a16910a   nginx:1.13.0-alpine           "nginx -g 'daemon of…"   3 hours ago   Up 3 minutes   0.0.0.0:80->80/tcp       nantavit_agnos_backend-nginx-1
fab962f43b4a   postgres:alpine               "docker-entrypoint.s…"   3 hours ago   Up 4 minutes   0.0.0.0:5432->5432/tcp   nantavit_agnos_backend-db-1
c4d817ca4216   nantavit_agnos_backend-web    "air ./cmd/main.go -…"   3 hours ago   Up 3 minutes   0.0.0.0:3006->3006/tcp   nantavit_agnos_backend-web-1
```

First request

HTTP http://localhost:80/password

| POST ∨ | http://localhost:80/password |

Params Authorization Headers (9) **Body ●** Pre-request Script Tests Settings

● none ● form-data ● x-www-form-urlencoded ● raw ● binary ● GraphQL **Text** ∨

```
1  {
2    "init_password": "Password123"
3  }
```

Body Cookies Headers (5) Test Results

| Pretty | Raw | Preview | Visualize | JSON ∨ |

```
1  {
2      "num_of_steps": 0
3  }
```

Second request

HTTP http://localhost:80/password

| POST ∨ | http://localhost:80/password |

Params Authorization Headers (9) **Body ●** Pre-request Script Tests Settings

● none ● form-data ● x-www-form-urlencoded ● raw ● binary ● GraphQL **Text** ∨

```
1  {
2    "init_password": "Aa2241555"
3  }
```

Body Cookies Headers (5) Test Results

| Pretty | Raw | Preview | Visualize | JSON ∨ |

```
1  {
2      "num_of_steps": 1
3  }
```

```
PS C:\Users\Pom\Desktop\nantavit_agnos_backend\handlers> go test -v
=== RUN   TestValidatePassword
Input Password: Abcdefg123
--------> count: 0
Input Password: Abcdefg
----> Password Contains at least 1 digit,
--------> count: 1
Input Password: abcdefg123
----> Password Contains at least 1 uppercase letter
--------> count: 1
Input Password: ABCDEFG123
----> Password Contains at least 1 lowercase letter
--------> count: 1
Input Password: Abcde555fga
----> Password does not contain 3 repeating characters
--------> count: 1
Input Password: aA1
----> Password length should be between 6 and 19 characters
--------> count: 1
Input Password: Abcd!fg12345678901234
----> Password length should be between 6 and 19 characters
--------> count: 1
Input Password: A11
----> Password Contains at least 1 lowercase letter
----> Password length should be between 6 and 19 characters
--------> count: 2
Input Password: a23
----> Password Contains at least 1 uppercase letter
----> Password length should be between 6 and 19 characters
--------> count: 2
Input Password: AAA
----> Password Contains at least 1 lowercase letter
----> Password Contains at least 1 digit,
----> Password does not contain 3 repeating characters
----> Password length should be between 6 and 19 characters
--------> count: 4
```

```
PS C:\Users\Pom\Desktop\nantavit_agnos_backend> docker ps
CONTAINER ID   IMAGE                        COMMAND                  CREATED          STATUS                  PORTS                      NAMES
78a9c2c9523a   itwars/mygo:latest           "./app"                  5 seconds ago    Up Less than a second   3000/tcp                   myapp_app-back.1.k2zmuq440m8zqg52807pdjkeu
51348a16910a   nginx:1.13.0-alpine          "nginx -g 'daemon of…"   3 hours ago      Up 10 minutes           0.0.0.0:80->80/tcp         nantavit_agnos_backend-nginx-1
fab962f43b4a   postgres:alpine              "docker-entrypoint.s…"   3 hours ago      Up 10 minutes           0.0.0.0:5432->5432/tcp     nantavit_agnos_backend-db-1
c4d817ca4216   nantavit_agnos_backend-web   "air ./cmd/main.go -…"   3 hours ago      Up 10 minutes           0.0.0.0:3006->3006/tcp     nantavit_agnos_backend-web-1
PS C:\Users\Pom\Desktop\nantavit_agnos_backend> docker exec -it fab962f43b4a psql -U root -d divrhinotrivia
psql (16.2)
Type "help" for help.

divrhinotrivia=# \dt
              List of relations
 Schema |           Name            | Type  | Owner
--------+---------------------------+-------+-------
 public | logs                      | table | root
 public | password_recommendations  | table | root
(2 rows)

divrhinotrivia=# select * from logs;
 id |           created_at           |           updated_at           | deleted_at |                                                    message
----+--------------------------------+--------------------------------+------------+----------------------------------------------------------------------------------------------------------------
  1 | 2024-02-20 05:51:57.591906+00 | 2024-02-20 05:51:57.591906+00 |            | connected
  2 | 2024-02-20 05:56:14.917054+00 | 2024-02-20 05:56:14.917054+00 |            | connected
  3 | 2024-02-20 05:58:55.53172+00  | 2024-02-20 05:58:55.53172+00  |            | 200
  4 | 2024-02-20 06:00:52.616121+00 | 2024-02-20 06:00:52.616121+00 |            | Password recommendation created successfully with ID 15
  5 | 2024-02-20 06:08:05.825221+00 | 2024-02-20 06:08:05.825221+00 |            | Password recommendation created successfully with ID 16. Client IP: 172.20.0.1
  6 | 2024-02-20 06:24:26.580375+00 | 2024-02-20 06:24:26.580375+00 |            | Client IP: 172.20.0.1 : recommendation created successfully with ID 17.
  7 | 2024-02-20 06:28:11.698219+00 | 2024-02-20 06:28:11.698219+00 |            | Client IP: 172.20.0.1 : recommendation created successfully with ID 18.
  8 | 2024-02-20 06:29:12.560146+00 | 2024-02-20 06:29:12.560146+00 |            | Client IP: 172.20.0.1 : recommendation created successfully with ID 19.
  9 | 2024-02-20 06:29:22.113298+00 | 2024-02-20 06:29:22.113298+00 |            | Client IP: 172.20.0.1 : recommendation created successfully with ID 20.
 10 | 2024-02-20 06:34:32.395905+00 | 2024-02-20 06:34:32.395905+00 |            | Client IP: 172.20.0.1 : recommendation created successfully with ID 21.
 11 | 2024-02-20 06:36:15.60511+00  | 2024-02-20 06:36:15.60511+00  |            | Client IP: 172.20.0.1 : recommendation created successfully with ID 22.
 12 | 2024-02-20 06:39:50.079218+00 | 2024-02-20 06:39:50.079218+00 |            | Client IP: 172.20.0.1 : recommendation created successfully with ID 23.
 13 | 2024-02-20 06:40:00.09805+00  | 2024-02-20 06:40:00.09805+00  |            | Client IP: 172.20.0.1 : created error with ID 1.
 14 | 2024-02-20 06:41:50.223731+00 | 2024-02-20 06:41:50.223731+00 |            | Client IP: 172.20.0.1 : recommendation created successfully with ID 24.
 15 | 2024-02-20 06:43:50.987822+00 | 2024-02-20 06:43:50.987822+00 |            | Client IP: 172.20.0.1 : recommendation created successfully with ID 25 password FFdf545.
 16 | 2024-02-20 06:45:22.83686+00  | 2024-02-20 06:45:22.83686+00  |            | Client IP: 172.20.0.1 : recommendation created successfully with ID 26 password FFd545.
 17 | 2024-02-20 06:45:35.294184+00 | 2024-02-20 06:45:35.294184+00 |            | Client IP: 172.20.0.1 : created error with num_of_steps 1 password FFd55.
 18 | 2024-02-20 06:49:32.440719+00 | 2024-02-20 06:49:32.440719+00 |            | Client IP: 172.20.0.1 : recommendation created successfully with ID 27 password FFdf545.
 19 | 2024-02-20 06:51:08.774192+00 | 2024-02-20 06:51:08.774192+00 |            | Client IP: 172.20.0.1 : recommendation created successfully with ID 28 password FFdf545.
 20 | 2024-02-20 06:51:14.159176+00 | 2024-02-20 06:51:14.159176+00 |            | Client IP: 172.20.0.1 : created error with num_of_steps 1 password FFdf545444.
 21 | 2024-02-20 06:51:19.159398+00 | 2024-02-20 06:51:19.159398+00 |            | Client IP: 172.20.0.1 : created error with num_of_steps 2 password FF545444.
 22 | 2024-02-20 06:51:26.832686+00 | 2024-02-20 06:51:26.832686+00 |            | Client IP: 172.20.0.1 : created error with num_of_steps 1 password FF54544.
 23 | 2024-02-20 07:20:53.962697+00 | 2024-02-20 07:20:53.962697+00 |            | Client IP: 172.20.0.1 : recommendation created successfully with ID 29 password Password123.
 24 | 2024-02-20 07:24:15.113641+00 | 2024-02-20 07:24:15.113641+00 |            | Client IP: 172.20.0.1 : recommendation created successfully with ID 30 password Password123.
 25 | 2024-02-20 07:32:29.525993+00 | 2024-02-20 07:32:29.525993+00 |            | Client IP: 172.20.0.1 : recommendation created successfully with ID 31 password Password123.
 26 | 2024-02-20 08:41:43.626188+00 | 2024-02-20 08:41:43.626188+00 |            | Client IP: 172.20.0.1 : recommendation created successfully with ID 32 password Password123.
(26 rows)
```

```
divrhinotrivia=# select * from password_recommendations;
 id |           created_at           |           updated_at           | deleted_at | init_password
----+--------------------------------+--------------------------------+------------+----------------
  1 | 2024-02-19 14:20:38.731283+00 | 2024-02-19 14:20:38.731283+00 |            | ff
  2 | 2024-02-19 14:20:42.932101+00 | 2024-02-19 14:20:42.932101+00 |            | ff
  3 | 2024-02-19 14:29:39.860424+00 | 2024-02-19 14:29:39.860424+00 |            | ff1
  4 | 2024-02-19 14:33:51.634828+00 | 2024-02-19 14:33:51.634828+00 |            | ff3
  5 | 2024-02-19 16:18:17.664995+00 | 2024-02-19 16:18:17.664995+00 |            | ff4
  6 | 2024-02-19 21:58:03.856055+00 | 2024-02-19 21:58:03.856055+00 |            | ff4
  7 | 2024-02-20 05:00:48.594269+00 | 2024-02-20 05:00:48.594269+00 |            | ff666
  8 | 2024-02-20 05:38:19.884304+00 | 2024-02-20 05:38:19.884304+00 |            | ff6667
  9 | 2024-02-20 05:46:15.3758+00   | 2024-02-20 05:46:15.3758+00   |            | ff6667
 10 | 2024-02-20 05:47:27.112193+00 | 2024-02-20 05:47:27.112193+00 |            | ff6667
 11 | 2024-02-20 05:48:26.959192+00 | 2024-02-20 05:48:26.959192+00 |            | ff6667
 12 | 2024-02-20 05:53:05.136961+00 | 2024-02-20 05:53:05.136961+00 |            | ff6667
 13 | 2024-02-20 05:56:14.913712+00 | 2024-02-20 05:56:14.913712+00 |            | ff6667
 14 | 2024-02-20 05:58:55.529425+00 | 2024-02-20 05:58:55.529425+00 |            | ff6667
 15 | 2024-02-20 06:00:52.613774+00 | 2024-02-20 06:00:52.613774+00 |            | ff6667
 16 | 2024-02-20 06:08:05.823049+00 | 2024-02-20 06:08:05.823049+00 |            | ff6667
 17 | 2024-02-20 06:24:26.576319+00 | 2024-02-20 06:24:26.576319+00 |            | ff6667E
 18 | 2024-02-20 06:28:11.695181+00 | 2024-02-20 06:28:11.695181+00 |            | ff6667E
 19 | 2024-02-20 06:29:12.558462+00 | 2024-02-20 06:29:12.558462+00 |            | ff667E
 20 | 2024-02-20 06:29:22.111381+00 | 2024-02-20 06:29:22.111381+00 |            | ff667Eaaaa5555
 21 | 2024-02-20 06:34:32.393815+00 | 2024-02-20 06:34:32.393815+00 |            | ff667Eaaaa5555
 22 | 2024-02-20 06:36:15.599551+00 | 2024-02-20 06:36:15.599551+00 |            | FFdf5455
 23 | 2024-02-20 06:39:50.077167+00 | 2024-02-20 06:39:50.077167+00 |            | FFdf5455
 24 | 2024-02-20 06:41:50.220727+00 | 2024-02-20 06:41:50.220727+00 |            | FFdf545
 25 | 2024-02-20 06:43:50.985716+00 | 2024-02-20 06:43:50.985716+00 |            | FFdf545
 26 | 2024-02-20 06:45:22.832718+00 | 2024-02-20 06:45:22.832718+00 |            | FFd545
 27 | 2024-02-20 06:49:32.43533+00  | 2024-02-20 06:49:32.43533+00  |            | FFdf545
 28 | 2024-02-20 06:51:08.771685+00 | 2024-02-20 06:51:08.771685+00 |            | FFdf545
 29 | 2024-02-20 07:20:53.960036+00 | 2024-02-20 07:20:53.960036+00 |            | Password123
 30 | 2024-02-20 07:24:15.111636+00 | 2024-02-20 07:24:15.111636+00 |            | Password123
 31 | 2024-02-20 07:32:29.523235+00 | 2024-02-20 07:32:29.523235+00 |            | Password123
 32 | 2024-02-20 08:41:43.621196+00 | 2024-02-20 08:41:43.621196+00 |            | Password123
```