Lab 4

Step1 Install New Ubuntu Server

1. sudo apt update

```
devuser@backend097:~$ sudo apt update
[sudo] password for devuser:
Hit:1 http://ports.ubuntu.com/ubuntu-ports jammy InRelease
Get:2 http://ports.ubuntu.com/ubuntu-ports jammy-updates InRelease [119 kB]
Hit:3 http://ports.ubuntu.com/ubuntu-ports jammy-backports InRelease
Get:4 http://ports.ubuntu.com/ubuntu-ports jammy-security InRelease [110 kB]
Fetched 229 kB in 2s (101 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
47 packages can be upgraded. Run 'apt list --upgradable' to see them.
```

2. sudo apt upgrade

```
devuser@backend097:~$ sudo apt upgrade
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Calculating upgrade... Done
```

3. sudo ufw app list

```
devuser@backend097:~$ sudo ufw app list
Available applications:
  OpenSSH
```

4. sudo ufw allow OpenSSH

```
devuser@backend097:~$ sudo ufw allow OpenSSH
Rules updated
Rules updated (v6)
```

5. sudo ufw enable

```
devuser@backend097:~$ sudo ufw enable
Command may disrupt existing ssh connections. Proceed with operation (y|n)? y
Firewall is active and enabled on system startup
```

6.sudo ufw status

```
devuser@backend097:~$ sudo ufw status
Status: active

To                         Action      From
--                         ------      ----
OpenSSH                    ALLOW       Anywhere
OpenSSH (v6)               ALLOW       Anywhere (v6)
```

วิธีเปลี่ยนชื่อ server

1. sudo nano /etc/hostname

```
devuser@server:~$ sudo nano /etc/hostname
```

เปลี่ยนชื่อจากอันเก่าเป็นชื่อใหม่

```
  GNU nano 6.2
backend097
```

2. sudo nano /etc/hosts

```
devuser@server:~$ sudo nano /etc/hosts
```

เปลี่ยนชื่อตรง 127.0.1.1 เป็นชื่อใหม่

```
127.0.0.1 localhost
127.0.1.1 backend097

# The following lines are desirable for
::1     ip6-localhost ip6-loopback
fe00::0 ip6-localnet
ff00::0 ip6-mcastprefix
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
```

3. sudo reboot

```
devuser@server:~$ sudo reboot
```

4. เช็คชื่อ server

hostnamectl

```
devuser@backend097:~$ hostnamectl
 Static hostname: backend097
       Icon name: computer-vm
         Chassis: vm
      Machine ID: 1a6936cd4e8042199c21e487a525c37e
         Boot ID: 29d3a23434ea457188aab3a1d7c22df6
  Virtualization: parallels
Operating System: Ubuntu 22.04.3 LTS
          Kernel: Linux 5.15.0-91-generic
    Architecture: arm64
 Hardware Vendor: Parallels International GmbH.
  Hardware Model: Parallels ARM Virtual Machine
```

Step2 MySQL Server

1. ค้นหาเซิร์ฟเวอร์ MySQL และแพ็คเกจไคลเอนต์บน Ubuntu 22.04

    sudo apt-cache search mysql-server

```
devuser@backend097:~$ sudo apt-cache search mysql-server
mysql-server - MySQL database server (metapackage depending on the latest version)
mysql-server-8.0 - MySQL database server binaries and system database setup
mysql-server-core-8.0 - MySQL database server binaries
default-mysql-server - MySQL database server binaries and system database setup (metapackage)
default-mysql-server-core - MySQL database server binaries (metapackage)
mariadb-server-10.6 - MariaDB database server binaries
mariadb-server-core-10.6 - MariaDB database core server files
```

2. sudo apt info -a mysql-server-8.0

```
devuser@backend097:~$ sudo apt info -a mysql-server-8.0
Package: mysql-server-8.0
Version: 8.0.35-0ubuntu0.22.04.1
Priority: optional
Section: database
Source: mysql-8.0
Origin: Ubuntu
```

3. sudo apt install mysql-server-8.0

```
devuser@backend097:~$ sudo apt install mysql-server-8.0
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
```

4. พิมพ์คำสั่งตามนี้

- sudo mysql
- ALTER USER 'root'@'localhost' IDENTIFIED WITH mysql_native_password BY 'P@ssw0rd@2023';
- exit

```
devuser@backend097:~$ sudo mysql
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 8
Server version: 8.0.35-0ubuntu0.22.04.1 (Ubuntu)

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> ALTER USER 'root'@'localhost' IDENTIFIED WITH mysql_native_password BY 'P@ssw0rd@2023';
Query OK, 0 rows affected (0.00 sec)

mysql> exit
Bye
```

5. sudo mysql_secure_installation

```
devuser@backend097:~$ sudo mysql_secure_installation
```

6. เปิดใช้งานเซิร์ฟเวอร์ MySQL คำสั่งตามนี้

- sudo systemctl is-enabled mysql.service
- sudo systemctl enable mysql.service
- sudo systemctl status mysql.service

```
devuser@backend097:~$ sudo systemctl is-enabled mysql.service
enabled
devuser@backend097:~$ sudo systemctl enable mysql.service
Synchronizing state of mysql.service with SysV service script with /lib/systemd/systemd-sysv-install.
Executing: /lib/systemd/systemd-sysv-install enable mysql
devuser@backend097:~$ sudo systemctl status mysql.service
● mysql.service - MySQL Community Server
     Loaded: loaded (/lib/systemd/system/mysql.service; enabled; vendor preset: enabled)
     Active: active (running) since Wed 2024-01-03 06:15:51 UTC; 7min ago
   Main PID: 808 (mysqld)
     Status: "Server is operational"
      Tasks: 38 (limit: 2191)
     Memory: 425.7M
        CPU: 4.650s
     CGroup: /system.slice/mysql.service
             └─808 /usr/sbin/mysqld

Jan 03 06:15:50 backend097 systemd[1]: Starting MySQL Community Server...
Jan 03 06:15:51 backend097 systemd[1]: Started MySQL Community Server.
```

Step3 Install Nginx

1. sudo apt update && sudo apt upgrade

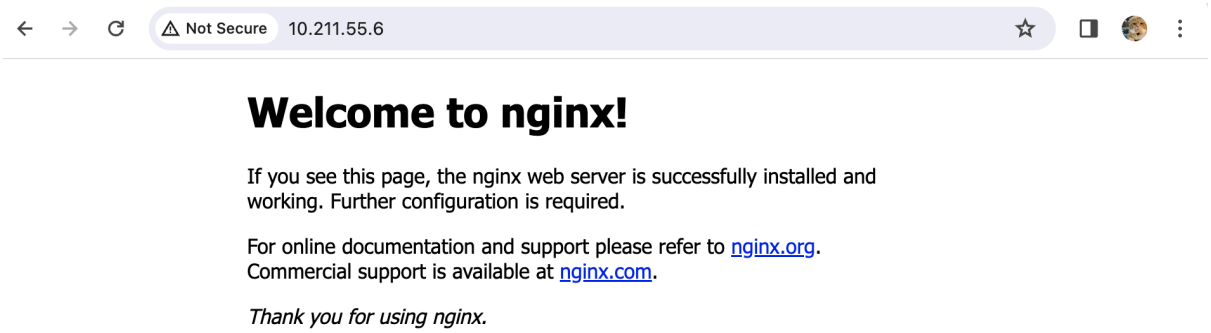
```
devuser@backend097:~$ sudo apt update && sudo apt upgrade
Hit:1 http://ports.ubuntu.com/ubuntu-ports jammy InRelease
Get:2 http://ports.ubuntu.com/ubuntu-ports jammy-updates InRelease [119 kB]
Hit:3 http://ports.ubuntu.com/ubuntu-ports jammy-backports InRelease
Get:4 http://ports.ubuntu.com/ubuntu-ports jammy-security InRelease [110 kB]
Fetched 229 kB in 2s (115 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
7 packages can be upgraded. Run 'apt list --upgradable' to see them.
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Calculating upgrade... Done
The following packages have been kept back:
  distro-info distro-info-data python3-distro-info python3-software-properties python3-update-manager
  software-properties-common update-manager-core
0 upgraded, 0 newly installed, 0 to remove and 7 not upgraded.
```

2. sudo apt install nginx certbot python3-certbot-nginx

```
devuser@backend097:~$ sudo apt install nginx certbot python3-certbot-nginx
```

3. sudo ufw allow 'Nginx Full'

```
devuser@backend097:~$ sudo ufw allow 'Nginx Full'
Rule added
Rule added (v6)
```



Step4 Nodejs Installation

1. ดาวน์โหลดและนำเข้าคีย์ Nodesource GPG
    - sudo apt-get update
    - sudo apt-get install -y ca-certificates curl gnupg
    - sudo mkdir -p /etc/apt/keyrings
    - curl -fsSL https://deb.nodesource.com/gpgkey/nodesource-repo.gpg.key | sudo gpg --dearmor -o /etc/apt/keyrings/nodesource.gpg

```
devuser@backend097:~$ sudo apt-get update
Hit:1 http://ports.ubuntu.com/ubuntu-ports jammy InRelease
Hit:2 http://ports.ubuntu.com/ubuntu-ports jammy-updates InRelease
Hit:3 http://ports.ubuntu.com/ubuntu-ports jammy-backports InRelease
Hit:4 http://ports.ubuntu.com/ubuntu-ports jammy-security InRelease
Reading package lists... Done
devuser@backend097:~$ sudo apt-get install -y ca-certificates curl gnupg
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
ca-certificates is already the newest version (20230311ubuntu0.22.04.1).
ca-certificates set to manually installed.
curl is already the newest version (7.81.0-1ubuntu1.15).
curl set to manually installed.
gnupg is already the newest version (2.2.27-3ubuntu2.1).
gnupg set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 7 not upgraded.
devuser@backend097:~$ sudo mkdir -p /etc/apt/keyrings
devuser@backend097:~$ curl -fsSL https://deb.nodesource.com/gpgkey/nodesource-repo.gpg.key | sudo gpg --dearmor -o /etc/apt/key
rings/nodesource.gpg
```

2. สร้างพื้นที่เก็บข้อมูล deb
    - NODE_MAJOR=20
    - echo "deb [signed-by=/etc/apt/keyrings/nodesource.gpg] https://deb.nodesource.com/node_$NODE_MAJOR.x nodistro main" | sudo tee /etc/apt/sources.list.d/nodesource.list

```
devuser@backend097:~$ NODE_MAJOR=20
devuser@backend097:~$ echo "deb [signed-by=/etc/apt/keyrings/nodesource.gpg] https://deb.nodesource.com/node_$NODE_MAJOR.x nodi
stro main" | sudo tee /etc/apt/sources.list.d/nodesource.list
deb [signed-by=/etc/apt/keyrings/nodesource.gpg] https://deb.nodesource.com/node_20.x nodistro main
```

3. Run Update and Install
    - sudo apt-get update
    - sudo apt-get install nodejs -y

```
devuser@backend097:~$ sudo apt-get update
Get:1 https://deb.nodesource.com/node_20.x nodistro InRelease [12.1 kB]
Get:2 https://deb.nodesource.com/node_20.x nodistro/main arm64 Packages [4,685 B]
Hit:3 http://ports.ubuntu.com/ubuntu-ports jammy InRelease
Hit:4 http://ports.ubuntu.com/ubuntu-ports jammy-updates InRelease
Hit:5 http://ports.ubuntu.com/ubuntu-ports jammy-backports InRelease
Hit:6 http://ports.ubuntu.com/ubuntu-ports jammy-security InRelease
Fetched 16.8 kB in 1s (12.1 kB/s)
Reading package lists... Done
devuser@backend097:~$ sudo apt-get install nodejs -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following NEW packages will be installed:
```

4. ทดสอบดรียก node และ npm
    - node -v
    - npm -v
      โดยการเช็คเวอร์ชั่นของ node และ npm

Step5 Create Login System with Node.js App

ทำใน Server เก่า (10.211.55.5)

1. sudo mkdir -p /var/www/lab4
   cd /var/www/lab4

```
devuser@webserver097:~$ sudo mkdir -p /var/www/lab4
devuser@webserver097:~$ cd /var/www/lab4
```

2. sudo mkdir -p nodelogin

```
devuser@webserver097:/var/www/lab4$ sudo mkdir -p nodelogin
```

3. sudo chown -R $USER:$USER /var/www/lab4

```
devuser@webserver097:/var/www/lab4$ sudo chown -R $USER:$USER /var/www/lab4
```

4. cd nodelogin

```
devuser@webserver097:/var/www/lab4$ cd nodelogin
```

5. sudo npm init

```
devuser@webserver097:/var/www/lab4/nodelogin$ sudo npm init
```

6. sudo npm install express --save

```
devuser@webserver097:/var/www/lab4/nodelogin$ sudo npm install express --save

changed 1 package, and audited 63 packages in 6s

11 packages are looking for funding
  run `npm fund` for details

found 0 vulnerabilities
```

7. sudo npm install express-session --save

```
devuser@webserver097:/var/www/lab4/nodelogin$ sudo npm install express-session --save

added 5 packages, and audited 68 packages in 995ms

11 packages are looking for funding
  run `npm fund` for details

found 0 vulnerabilities
```

8. sudo npm install mysql --save

```
devuser@webserver097:/var/www/lab4/nodelogin$ sudo npm install mysql --save

added 12 packages, and audited 80 packages in 1s

11 packages are looking for funding
  run `npm fund` for details

found 0 vulnerabilities
```

9. Connect VS Code
   ดูวิธี Connect ได้ใน lab2

10. DB MySQL

- sudo mysql -u root -p

```
devuser@webserver097:/var/www/lab4/nodelogin$ sudo mysql -u root -p
```

- CREATE USER 'example_user'@'%' IDENTIFIED BY 'P@ssw0rd@2023';

```
mysql> CREATE USER 'example_user'@'%' IDENTIFIED BY 'P@ssw0rd@2023';
Query OK, 0 rows affected (0.03 sec)
```

- ALTER USER 'root'@'localhost' IDENTIFIED WITH mysql_native_password BY 'P@ssw0rd@2023';

```
mysql> ALTER USER 'root'@'localhost' IDENTIFIED WITH mysql_native_password BY 'P@ssw0rd@2023';
Query OK, 0 rows affected (0.00 sec)
```

- CREATE DATABASE IF NOT EXISTS `nodelogin` DEFAULT CHARACTER SET utf8 COLLATE utf8_general_ci;

```
mysql> CREATE DATABASE IF NOT EXISTS `nodelogin` DEFAULT CHARACTER SET utf8 COLLATE utf8_general_ci;
Query OK, 1 row affected, 2 warnings (0.01 sec)
```

- GRANT ALL ON nodelogin.* TO 'example_user'@'%';

```
mysql> GRANT ALL ON nodelogin.* TO 'example_user'@'%';
Query OK, 0 rows affected (0.01 sec)
```

- USE nodelogin;

```
mysql> USE nodelogin;
Database changed
```

- CREATE TABLE IF NOT EXISTS `accounts` (
  `id` int(11) NOT NULL AUTO_INCREMENT,
  `username` varchar(50) NOT NULL,
  `password` varchar(255) NOT NULL,
  `email` varchar(100) NOT NULL,
  PRIMARY KEY (`id`)
) ENGINE=InnoDB AUTO_INCREMENT=2 DEFAULT CHARSET=utf8;

```
mysql> CREATE TABLE IF NOT EXISTS `accounts` (
    ->   `id` int(11) NOT NULL AUTO_INCREMENT,
    ->   `username` varchar(50) NOT NULL,
    ->   `password` varchar(255) NOT NULL,
    ->   `email` varchar(100) NOT NULL,
    ->   PRIMARY KEY (`id`)
    -> ) ENGINE=InnoDB AUTO_INCREMENT=2 DEFAULT CHARSET=utf8;
Query OK, 0 rows affected, 2 warnings (0.02 sec)
```

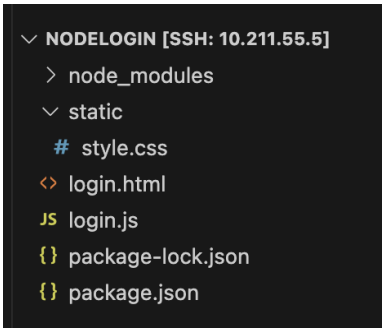
- INSERT INTO `accounts` (`id`, `username`, `password`, `email`) VALUES (1, 'test', 'test', 'test@test.com');

```
mysql> INSERT INTO `accounts` (`id`, `username`, `password`, `email`) VALUES (1, 'test', 'test', 'test
@test.com');
Query OK, 1 row affected (0.00 sec)
```

- EXIT

```
mysql> EXIT
Bye
devuser@webserver097:/var/www/lab4/nodelogin$
```

11. เพิ่มไฟล์ใน VSCode



- เพิ่มโค้ดใส่ไฟล์ตามลิ้งค์ https://codeshack.io/basic-login-system-nodejs-express-mysql/
- แก้ไขข้อมูลบางส่วนในไฟล์ login.js (ตามที่ไฮไลต์)

```
login.js > connection
1   const mysql = require('mysql');
2   const express = require('express');
3   const session = require('express-session');
4   const path = require('path');
5
6   const connection = mysql.createConnection({
7       host     : 'localhost',
8       user     : 'example_user',
9       password : 'P@ssw0rd@2023',
10      database : 'nodelogin'
11  });
```

```
71
72  app.listen(3003);
```

- แก้ไขข้อมูลบางส่วนในไฟล์ package.json (ตามที่ไฮไลต์)

```
{} package.json > ...
1   {
2     "name": "nodelogin",
3     "version": "1.0.0",
4     "description": "",
5     "main": "login.js",
        Debug
6     "scripts": {
7       "test": "echo \"Error: no test specified\" && exit 1"
8     },
9     "author": "",
10    "license": "ISC",
11    "dependencies": {
12      "express": "^4.18.2",
13      "express-session": "^1.17.3",
14      "mysql": "^2.18.1"
15    }
16  }
```

12. sudo ufw allow 3003

```
devuser@webserver097:/var/www/lab4/nodelogin$ sudo ufw allow 3003
Rule added
Rule added (v6)
```

13. sudo mysql -u root -p

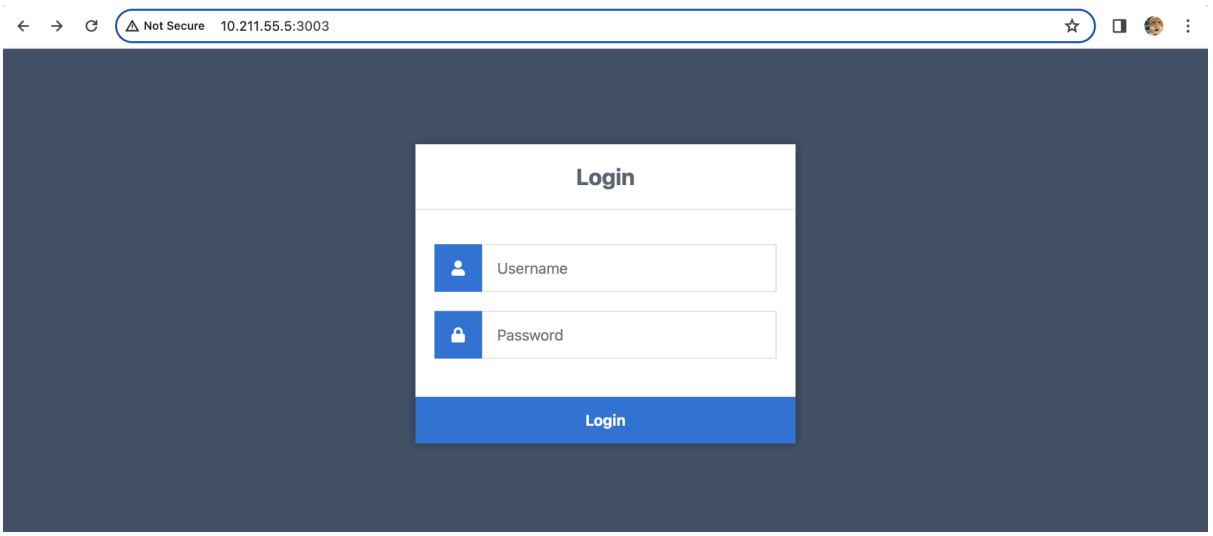
```
devuser@webserver097:/var/www/lab4/nodelogin$ sudo mysql -u root -p
```

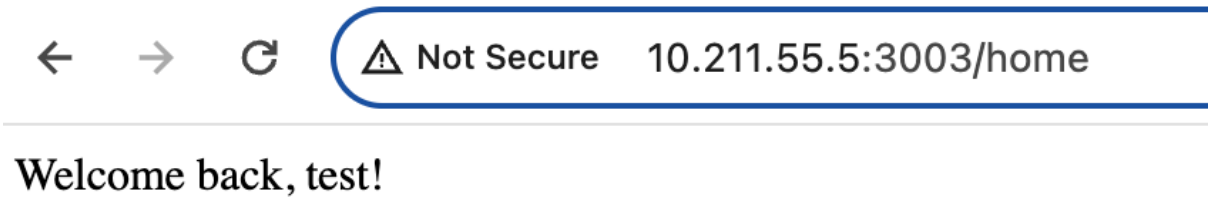
14. ALTER USER 'example_user'@'%' IDENTIFIED WITH mysql_native_password BY 'P@ssw0rd@2023';

```
mysql> ALTER USER 'example_user'@'%' IDENTIFIED WITH mysql_native_password BY 'P@ssw0rd@2023';
Query OK, 0 rows affected (0.01 sec)
```

15. node login.js

```
devuser@webserver097:/var/www/lab4/nodelogin$ node login.js
```





Welcome back, test!

16. cd /etc/nginx/sites-available

```
devuser@webserver097:~$ cd /etc/nginx/sites-available
```

17. sudo nano nodelogin

```
devuser@webserver097:/etc/nginx/sites-available$ sudo nano nodelogin
```

18. sudo systemctl restart nginx

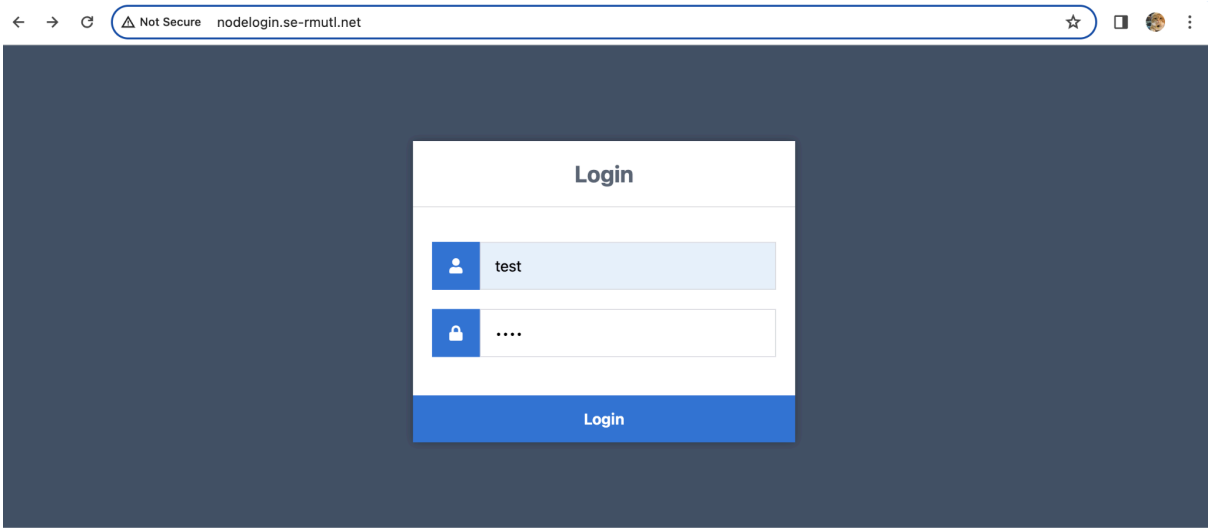
```
devuser@webserver097:/etc/nginx/sites-available$ sudo systemctl restart nginx
```

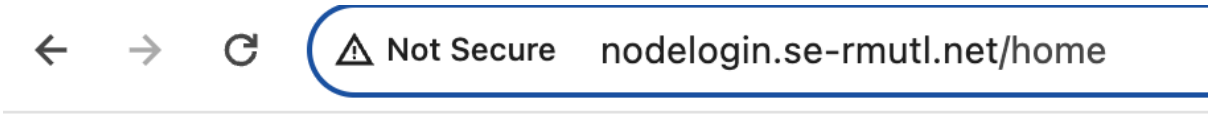
19. sudo nginx -t

```
devuser@webserver097:/etc/nginx/sites-available$ sudo nginx -t
nginx: the configuration file /etc/nginx/nginx.conf syntax is ok
nginx: configuration file /etc/nginx/nginx.conf test is successful
```

20. sudo nano /etc/hosts

```
10.211.55.5       nodelogin.se-rmutl.net
```





Welcome back, test!

Step6 Create Login System with Node.js App (Client/Server)

My Source code :

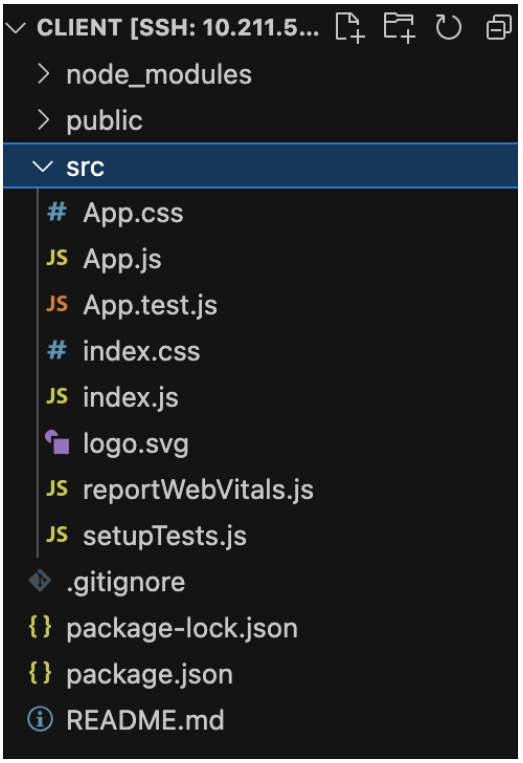
https://github.com/D5en15/A.Thanit-Lab4.git

6.1 Client

1. เข้า cd /var/www/lab4
   - mkdir client
   - cd client
   - npx create-react-app .

```
devuser@webserver097:/var/www/lab4$ mkdir client
devuser@webserver097:/var/www/lab4$ ls
client  nodelogin
devuser@webserver097:/var/www/lab4$ cd client
devuser@webserver097:/var/www/lab4/client$ npx create-react-app .
```

2. Connect VS Code



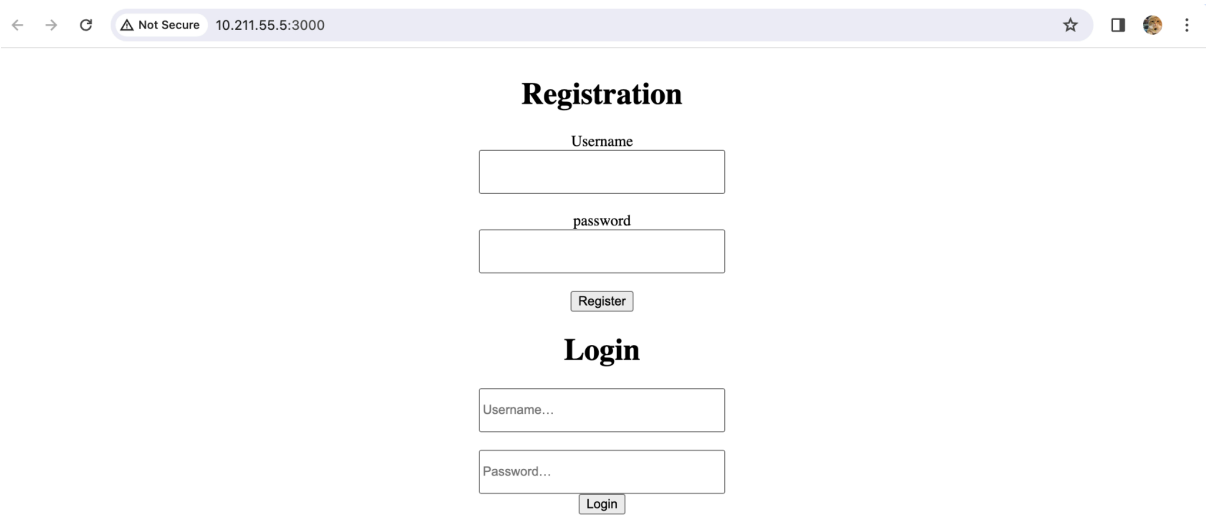
3. นำโค้ดเข้าใส่ใน VSCode
https://github.com/gsandamali/Part-1-User-registration-and-login-without-JWT
client/src/

4. เพิ่ม npm i --save axios

```
devuser@webserver097:/var/www/lab4/client$ npm i --save axios
```

5. npm start

```
devuser@webserver097:/var/www/lab4/client$ npm start
```



6. เปลี่ยน PORT เป็น 3004

{} package.json

```
"scripts": {
  "start": "PORT=3004 react-scripts start",
```

sudo ufw allow 3004

7. cd /etc/nginx/sites-available

sudo cp default client

sudo nano client

```
devuser@webserver097:~$ cd /etc/nginx/sites-available
devuser@webserver097:/etc/nginx/sites-available$ sudo cp default client
devuser@webserver097:/etc/nginx/sites-available$ sudo nano client
```

```
server {
        listen 80;
        listen [::]:80;
        server_name weblogin.se-rmutl.net;

        location / {
          proxy_pass http://127.0.0.1:3004; # !!! - change to your app port
          proxy_http_version 1.1;
          proxy_set_header Upgrade $http_upgrade;
          proxy_set_header Connection 'upgrade';
          proxy_set_header Host $host;
          proxy_cache_bypass $http_upgrade;
        }
```

}

```
server {
        listen 80;
        listen [::]:80;
        server_name weblogin.se-rmutl.net;

        location / {
                proxy_pass http://127.0.0.1:3004; # !!! - change to your app port
                proxy_http_version 1.1;
                proxy_set_header Upgrade $http_upgrade;
                proxy_set_header Connection 'upgrade';
                proxy_set_header Host $host;
                proxy_cache_bypass $http_upgrade;
        }

}
```

8. sudo systemctl restart nginx
   sudo nginx -t

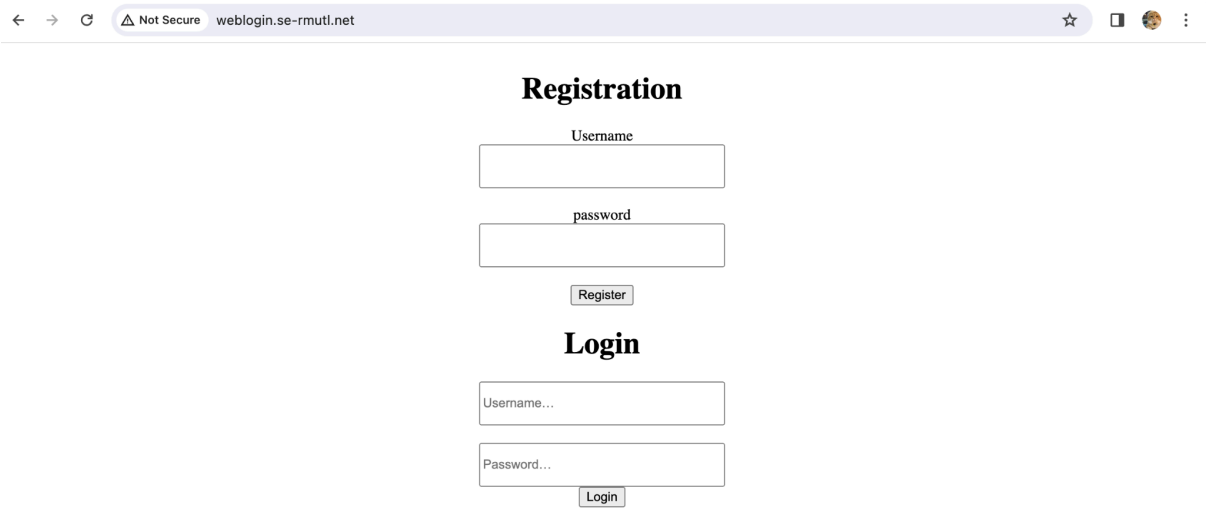
```
devuser@webserver097:/etc/nginx/sites-available$ sudo systemctl restart nginx
devuser@webserver097:/etc/nginx/sites-available$ sudo nginx -t
nginx: the configuration file /etc/nginx/nginx.conf syntax is ok
nginx: configuration file /etc/nginx/nginx.conf test is successful
```

9. sudo nano /etc/hosts

```
10.211.55.5      weblogin.se-rmutl.net
```

10. cd /var//www/lab4/client/
    npm start

```
Compiled successfully!

You can now view client in the browser.

  Local:            http://localhost:3004
  On Your Network:  http://10.211.55.5:3004

Note that the development build is not optimized.
To create a production build, use npm run build.

webpack compiled successfully
```



6.2 Server

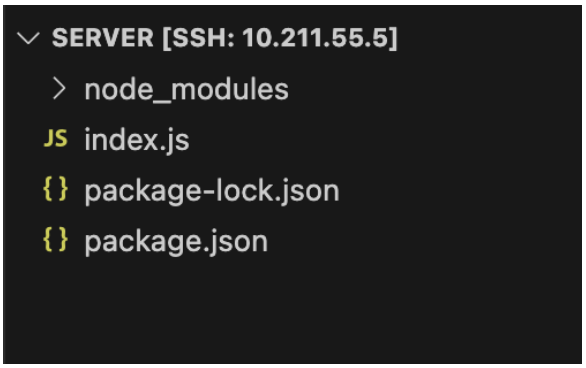
1. cd /var/www/lab4
   - mkdir server
   - cd server
   - npm init

```
devuser@webserver097:~$ cd /var/www/lab4
devuser@webserver097:/var/www/lab4$ mkdir server
devuser@webserver097:/var/www/lab4$ cd server
devuser@webserver097:/var/www/lab4/server$ npm init
```

2. npm install express -—save
   - npm install --save mysql2
   - npm i --save cors

```
devuser@webserver097:/var/www/lab4/server$ npm install express --save

added 62 packages, and audited 63 packages in 3s

11 packages are looking for funding
  run `npm fund` for details

found 0 vulnerabilities
devuser@webserver097:/var/www/lab4/server$ npm install --save mysql2

added 11 packages, and audited 74 packages in 2s

11 packages are looking for funding
  run `npm fund` for details

found 0 vulnerabilities
devuser@webserver097:/var/www/lab4/server$ npm i --save cors

added 2 packages, and audited 76 packages in 1s

11 packages are looking for funding
  run `npm fund` for details

found 0 vulnerabilities
```

3. Connect VS Code



4. sudo ufw allow 4000

```
devuser@webserver097:/var/www/lab4/server$ sudo ufw allow 4000
[sudo] password for devuser:
Rule added
Rule added (v6)
```

5. sudo mysql -u root -p

```
devuser@webserver097:/var/www/lab4/server$ sudo mysql -u root -p
```

- CREATE DATABASE IF NOT EXISTS `loginsystem` DEFAULT CHARACTER SET utf8 COLLATE utf8_general_ci;
- USE loginsystem;
- CREATE TABLE IF NOT EXISTS `users`(
  `username` varchar(50) NOT NULL,
  `password` varchar(500) NOT NULL,
  PRIMARY KEY (`username`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8;
- USE loginsystem;
- INSERT INTO `users` (`username`, `password`) VALUES ('test', 'test');
- GRANT ALL ON loginsystem.* TO 'example_user'@'%';

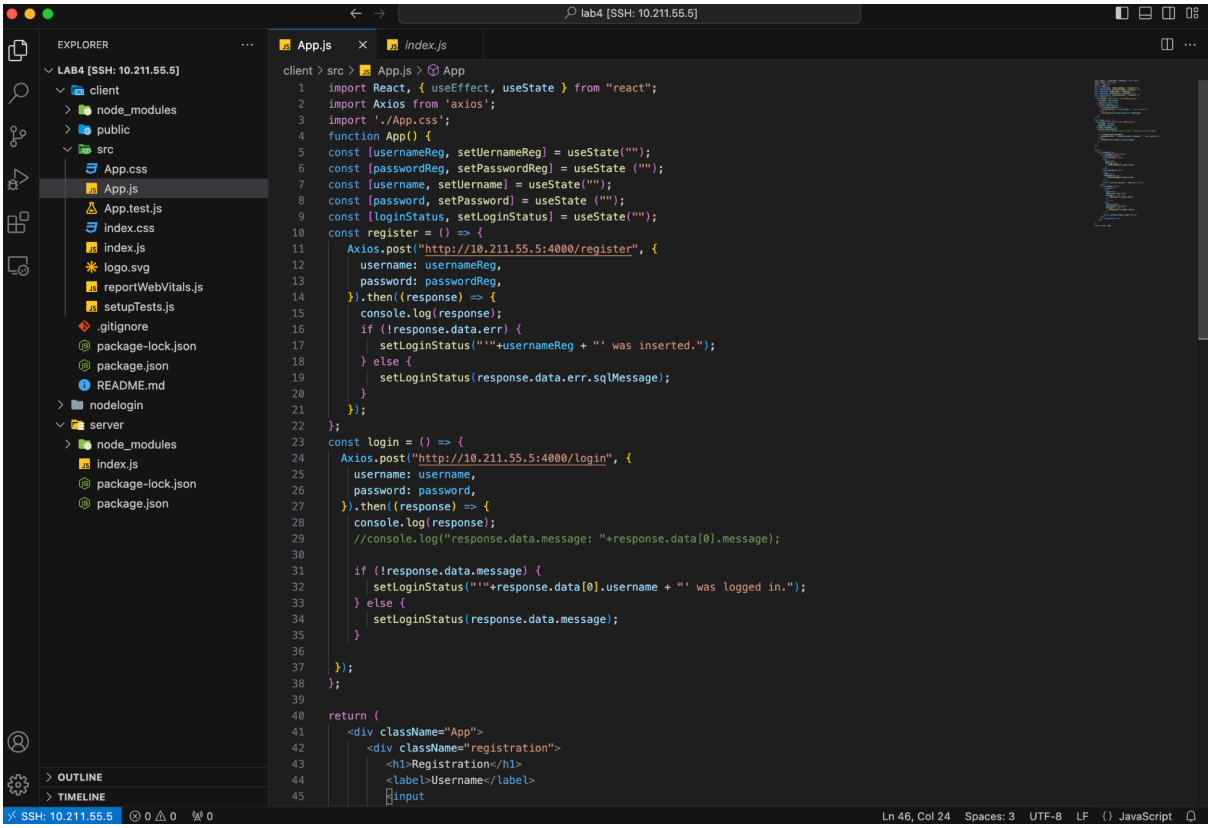
```
mysql> CREATE DATABASE IF NOT EXISTS `loginsystem` DEFAULT CHARACTER SET utf8 COLLATE utf8_general_ci;
Query OK, 1 row affected, 3 warnings (0.00 sec)

mysql> USE loginsystem;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
mysql> CREATE TABLE IF NOT EXISTS `users`(
    ->   `username` varchar(50) NOT NULL,
    ->   `password` varchar(500) NOT NULL,
    ->   PRIMARY KEY (`username`)
    -> ) ENGINE=InnoDB DEFAULT CHARSET=utf8;
Query OK, 0 rows affected, 2 warnings (0.00 sec)

mysql> USE loginsystem;
Database changed
mysql> INSERT INTO `users` (`username`, `password`) VALUES ('test', 'test');
Query OK, 1 row affected (0.00 sec)

mysql> GRANT ALL ON loginsystem.* TO 'example_user'@'%';
Query OK, 0 rows affected (0.00 sec)

mysql> exit
Bye
```

6. node index.js

ตรวจสอบว่าติดต่อกับ Server ได้หรือไม่

```
devuser@webserver097:/var/www/lab4/server$ node index.js
running server
Hello from API
Hello from API
```

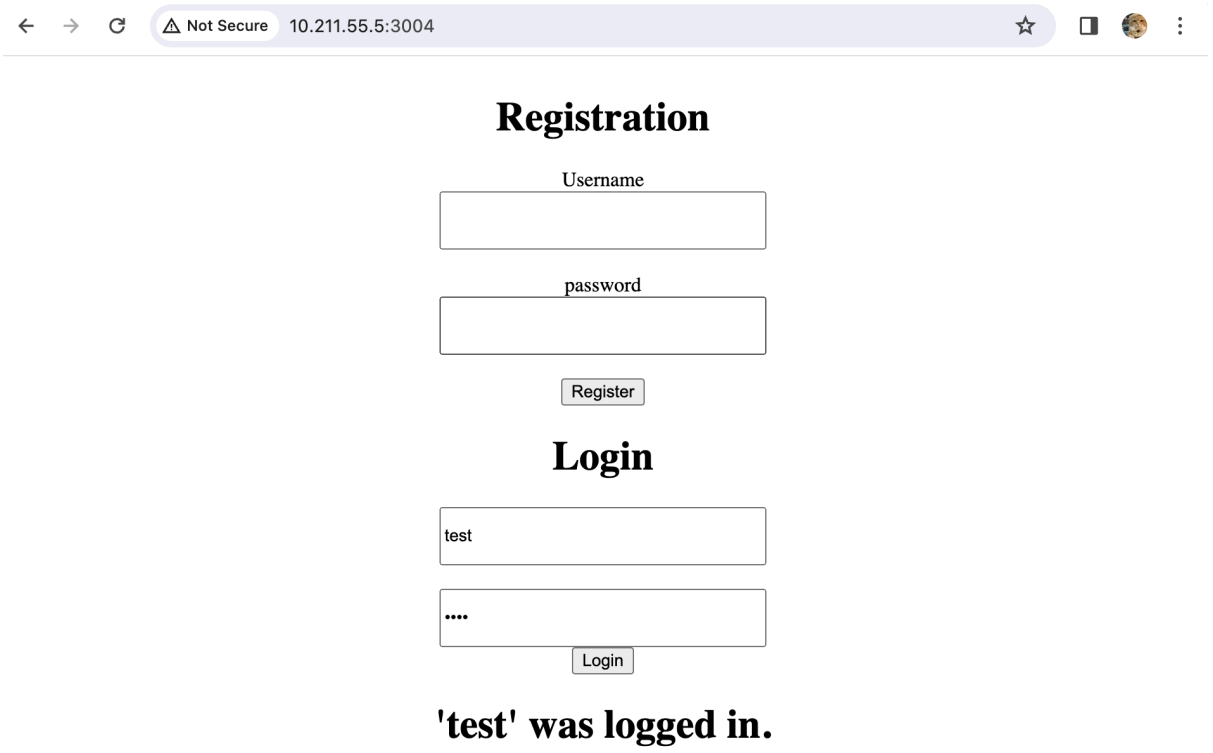
7. แก้ไข port ใน App.js ฝั่ง client ให้เป็น port 4000



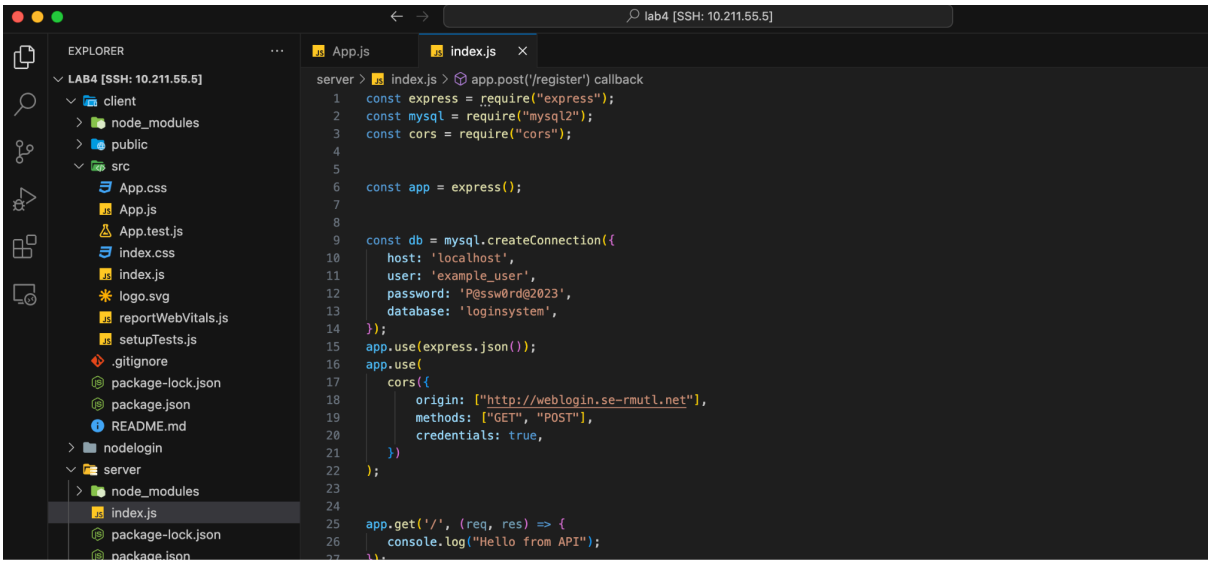

```
import React, { useEffect, useState } from "react";
import Axios from 'axios';
import './App.css';
function App() {
const [usernameReg, setUernameReg] = useState("");
const [passwordReg, setPasswordReg] = useState ("");
const [username, setUername] = useState("");
const [password, setPassword] = useState ("");
const [loginStatus, setLoginStatus] = useState("");
const register = () => {
   Axios.post("http://10.211.55.5:4000/register", {
     username: usernameReg,
     password: passwordReg,
   }).then((response) => {
     console.log(response);
     if (!response.data.err) {
       setLoginStatus("'"+usernameReg + "' was inserted.");
     } else {
       setLoginStatus(response.data.err.sqlMessage);
     }
   });
};
const login = () => {
  Axios.post("http://10.211.55.5:4000/login", {
    username: username,
    password: password,
  }).then((response) => {
    console.log(response);
    //console.log("response.data.message: "+response.data[0].message);

    if (!response.data.message) {
       setLoginStatus("'"+response.data[0].username + "' was logged in.");
    } else {
       setLoginStatus(response.data.message);
    }

  });
};

return (
   <div className="App">
     <div className="registration">
       <h1>Registration</h1>
       <label>Username</label>
       <input
```

8. เข้ารันในเว็บ แล้วให้ลองล็อกอิน

- [server] node index.js
- [client] npm start



9. ให้รันแบบโดเมนโดยเข้าไปแก้พอร์ตใน server/index.js
origin: ["http://10.211.55.5:3004"], => origin: ["http://weblogin.se-rmutl.net"],



Registration

Username

password

Register

Login

test

Login

'test' was logged in.

Step7 Create Login System with Node.js App (Server)

1. เพิ่มUser ใน backend ***ถ้ามีปัญหา***
   - sudo -i
   - adduser fang
   - usermod -aG sudo fang
   - ufw allow OpenSSH
   - ufw enable
   - ufw status

```
root@backend097:~# adduser fang
Adding user `fang' ...
Adding new group `fang' (1001) ...
Adding new user `fang' (1001) with group `fang' ...
Creating home directory `/home/fang' ...
Copying files from `/etc/skel' ...
New password:
Retype new password:
Sorry, passwords do not match.
passwd: Authentication token manipulation error
passwd: password unchanged
Try again? [y/N] y
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for fang
Enter the new value, or press ENTER for the default
        Full Name []:
        Room Number []:
        Work Phone []:
        Home Phone []:
        Other []:
Is the information correct? [Y/n] y
root@backend097:~# usermod -aG sudo fang
root@backend097:~# ufw allow OpenSSH
Skipping adding existing rule
Skipping adding existing rule (v6)
root@backend097:~# ufw enable
Command may disrupt existing ssh connections. Proceed with operation (y|n)? y
Firewall is active and enabled on system startup
root@backend097:~# ufw status
Status: active

To                         Action      From
--                         ------      ----
OpenSSH                    ALLOW       Anywhere
Nginx Full                 ALLOW       Anywhere
OpenSSH (v6)               ALLOW       Anywhere (v6)
Nginx Full (v6)            ALLOW       Anywhere (v6)

root@backend097:~# exit
logout
```

2. cd /var/www/lab4
   - sudo chown -R $USER:$USER /var/www/lab4
   - mkdir server
   - cd server
   - npm init

```
devuser@backend097:~$ sudo chown -R $USER:$USER /var/www/lab4
[sudo] password for devuser:
devuser@backend097:~$ cd /var/www/lab4
devuser@backend097:/var/www/lab4$ mkdir server
devuser@backend097:/var/www/lab4$ cd server
devuser@backend097:/var/www/lab4/server$ npm init
```

3. npm install express -—save
   - npm install --save mysql2
   - npm i --save cors

```
devuser@backend097:/var/www/lab4/server$  npm install express --save

added 62 packages, and audited 63 packages in 2s

11 packages are looking for funding
  run `npm fund` for details

found 0 vulnerabilities
devuser@backend097:/var/www/lab4/server$ npm install --save mysql2

added 11 packages, and audited 74 packages in 898ms

11 packages are looking for funding
  run `npm fund` for details

found 0 vulnerabilities
devuser@backend097:/var/www/lab4/server$ npm i --save cors

added 2 packages, and audited 76 packages in 660ms

11 packages are looking for funding
  run `npm fund` for details

found 0 vulnerabilities
```

4. sudo mysql -u root -p
   - CREATE USER 'example_user'@'%' IDENTIFIED BY 'P@ssw0rd@2023';
   - ALTER USER 'example_user'@'%' IDENTIFIED WITH mysql_native_password BY 'P@ssw0rd@2023';
   - CREATE DATABASE IF NOT EXISTS `loginsystem` DEFAULT CHARACTER SET utf8 COLLATE utf8_general_ci;
   - USE loginsystem;
   - CREATE TABLE IF NOT EXISTS `users`(
     `username` varchar(50) NOT NULL,
     `password` varchar(500) NOT NULL,
     PRIMARY KEY (`username`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8;
   - USE loginsystem;
   - INSERT INTO `users` (`username`, `password`) VALUES ('test', 'test');
   - GRANT ALL ON loginsystem.* TO 'example_user'@'%';

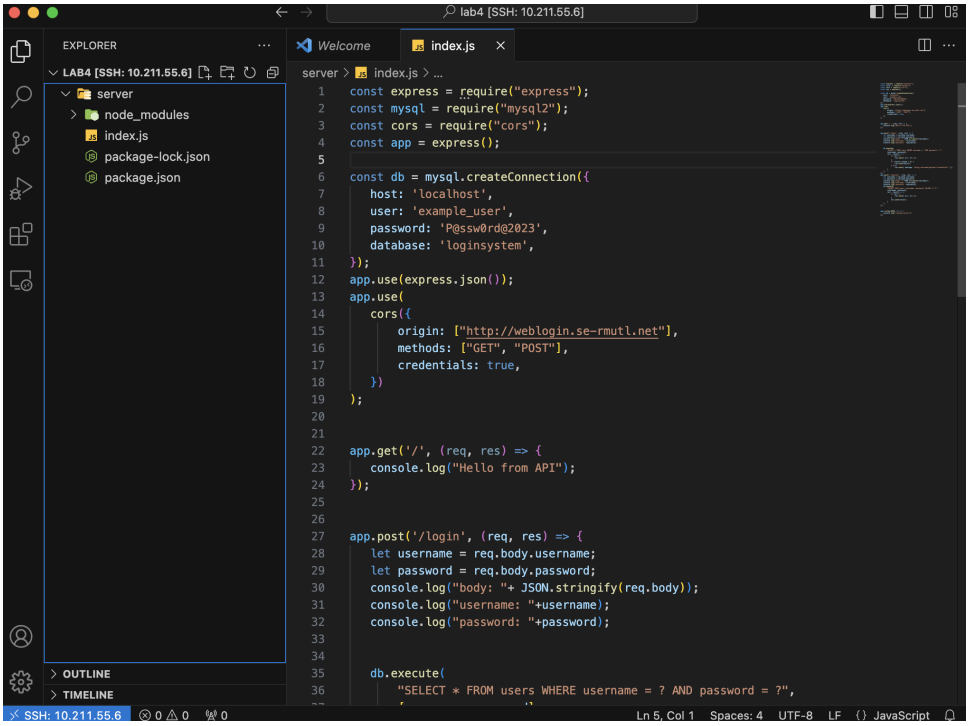
```
mysql> CREATE USER 'example_user'@'%' IDENTIFIED BY 'P@ssw0rd@2023';
Query OK, 0 rows affected (0.02 sec)

mysql> ALTER USER 'example_user'@'%' IDENTIFIED WITH mysql_native_password BY 'P@ssw0rd@2023';
Query OK, 0 rows affected (0.00 sec)

mysql> CREATE DATABASE IF NOT EXISTS `loginsystem` DEFAULT CHARACTER SET utf8 COLLATE utf8_general_ci;
Query OK, 1 row affected, 2 warnings (0.00 sec)

mysql> USE loginsystem;
Database changed
mysql> CREATE TABLE IF NOT EXISTS `users`(
    ->   `username` varchar(50) NOT NULL,
    ->   `password` varchar(500) NOT NULL,
    ->   PRIMARY KEY (`username`)
    -> ) ENGINE=InnoDB DEFAULT CHARSET=utf8;
Query OK, 0 rows affected, 1 warning (0.01 sec)

mysql> USE loginsystem;
Database changed
mysql> INSERT INTO `users` (`username`, `password`) VALUES ('test', 'test');
Query OK, 1 row affected (0.01 sec)

mysql> GRANT ALL ON loginsystem.* TO 'example_user'@'%';
Query OK, 0 rows affected (0.00 sec)

mysql> exit
Bye
```

5. sudo ufw allow 4000

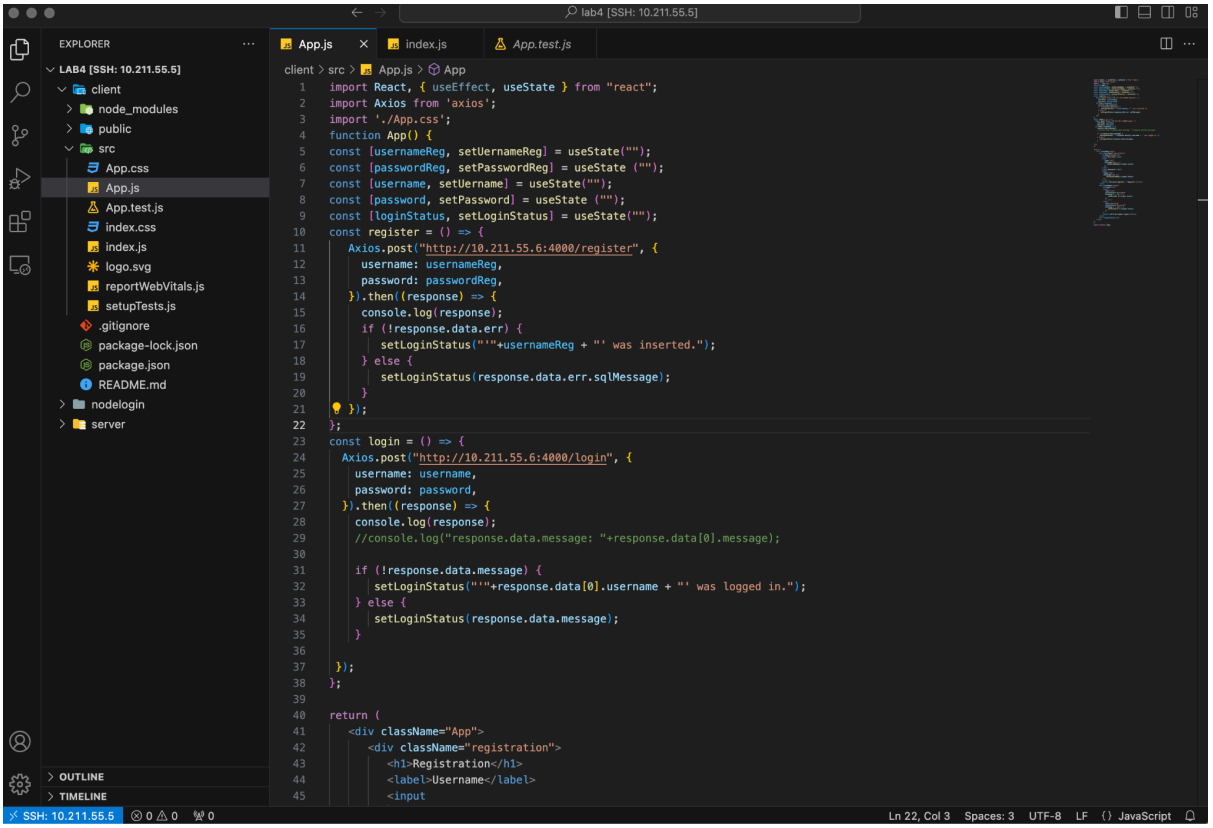
```
devuser@backend097:/var/www/lab4/server$ sudo ufw allow 4000
Rule added
Rule added (v6)
```

6. Connect VS Code

สร้างไฟล์ index.js นำโค้ดของ web server เข้ามา



แก้ไข ip ใน App.js ฝั่ง client ให้เป็น ip 10.211.55.6 ตามของ server



7. รันทั้ง webserver และ backend server แล้วให้รันแบบโดเมน และให้เข้าสู่ระบบดู