

LAB 4 (Step 5)

```
GNU nano 6.2 /etc/hostname
webserver020
```

```
GNU nano 6.2 /etc/hosts
127.0.0.1 localhost
127.0.1.1 webserver020
```

```
GNU nano 6.2 /etc/hostname
backend002
```

```
GNU nano 6.2 /etc/hosts
127.0.0.1 localhost
127.0.1.1 backend002
```

เข้าไปเปลี่ยน hostname / hosts ใหม่

เข้าไปที่ Webserver020

```
devuser@webserver020:/var/www/lab4/nodelogin$ node -v
v20.10.0
devuser@webserver020:/var/www/lab4/nodelogin$ npm -v
10.2.3
devuser@webserver020:/var/www/lab4/nodelogin$
```

ติดตั้ง Nodejs พร้อมตรวจสอบเวอร์ชัน

อนุญาต port 3000 ให้ใช้งานได้

```
devuser@webserver020:/var/www/lab4/nodelogin$ sudo ufw status
Status: active
```

To	Action	From
--	-----	----
OpenSSH	ALLOW	Anywhere
Apache	ALLOW	Anywhere
Nginx Full	ALLOW	Anywhere
3333	ALLOW	Anywhere
3000	ALLOW	Anywhere
3001	ALLOW	Anywhere
3002	ALLOW	Anywhere
3003	ALLOW	Anywhere
OpenSSH (v6)	ALLOW	Anywhere (v6)
Apache (v6)	ALLOW	Anywhere (v6)
Nginx Full (v6)	ALLOW	Anywhere (v6)
3333 (v6)	ALLOW	Anywhere (v6)
3000 (v6)	ALLOW	Anywhere (v6)
3001 (v6)	ALLOW	Anywhere (v6)
3002 (v6)	ALLOW	Anywhere (v6)
3003 (v6)	ALLOW	Anywhere (v6)

สร้าง Database (อันนี้เพิ่มไปก่อนหน้านั้นแล้ว)

```
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;
```

```
mysql> GRANT ALL ON nodelogin.* TO 'example_user'@'%';
```

```
mysql> ALTER USER 'example_user'@'%' IDENTIFIED WITH mysql_native_password BY 'P@ssw0rd@2023';
```

อนุญาตให้ user เข้ามาจัดการได้

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

ใส่ข้อมูลและตรวจสอบ

```
mysql> SELECT * FROM accounts;
+----+-----+-----+-----+
| id | username | password | email      |
+----+-----+-----+-----+
| 1  | test     | test     | test@test.com |
+----+-----+-----+-----+
1 row in set (0.00 sec)
```

```
mysql> FLUSH PRIVILEGES;
```

cd ไปโฟลเดอร์ nginx

```
devuser@webserver020:~$ cd /etc/nginx/sites-available/
devuser@webserver020:/etc/nginx/sites-available$ sudo cp myapp nodelogin
```

copy อันเก่ามาใช้และเปลี่ยนชื่อโดเมน

```
GNU nano 6.2                                     nodelogin
server {
    listen 80 ;
    listen [::]:80 ;
    server_name nodelogin.sermutl.net;

    location / {
        proxy_pass http://127.0.0.1:3003; # !!! - 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;
    }
}
```

```

## Host Database
#
# localhost is used to configure the loopback interface
# when the system is booting. Do not change this entry.
##
127.0.0.1      localhost engse203.lab1
255.255.255.255 broadcasthost
::1              localhost
10.211.55.4    myapp.se-rmutl.net expressjs-example.se-rmutl.net
10.211.55.4    nodelogin.se-rmutl.net
10.211.55.4    my-react-app.se-rmutl.net ubuntu-next-app.se-rmutl.net
10.211.55.4    ubuntu-linux-lab.shared ubuntu-linux-lab #prl_hostonly shared
10.211.55.5    ubuntu-linux-api.shared ubuntu-linux-api #prl_hostonly shared

```

Keyboard Shortcuts:

- ^G Get Help
- ^O WriteOut
- ^R Read File
- ^Y Prev Pg
- ^K Cut Text
- ^C Cur Pos
- ^X Exit
- ^J Justify
- ^W Where is
- ^V Next Pg
- ^U UnCut Text
- ^T To Spell

เพิ่มโดเมนในเครื่อง mac

Remote จาก VSCode เข้า Ubuntu และไปที่โฟลเดอร์ lab4/login.js
เปลี่ยน user และ password

```

EXPLORER          ...
JS login.js  X
JS login.js > ...
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 });
12
13 const app = express();

```

เปลี่ยนเลข port

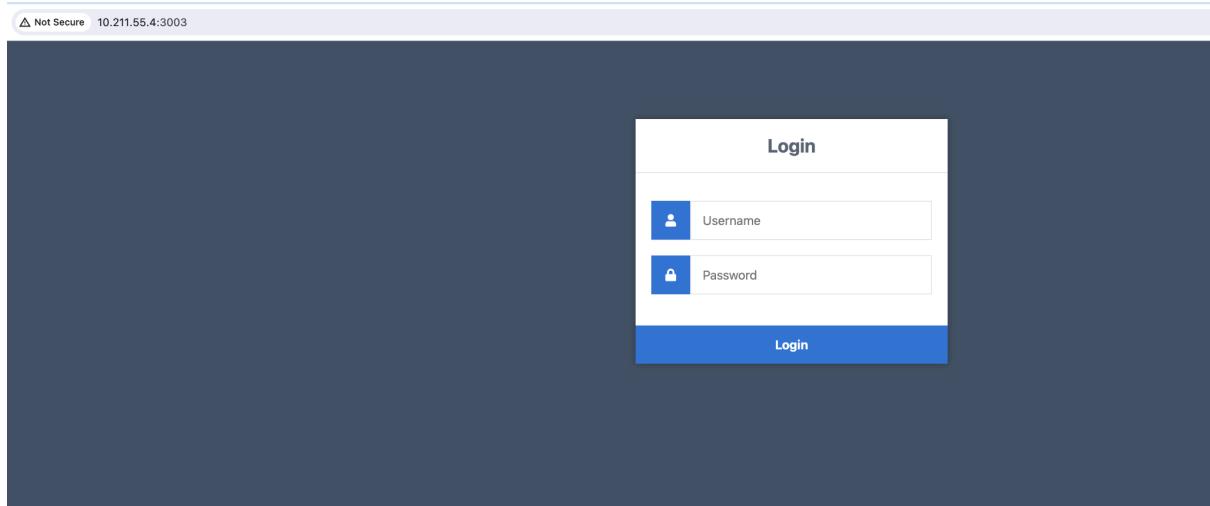
```

70      });
71
72  app.listen(3003);
73

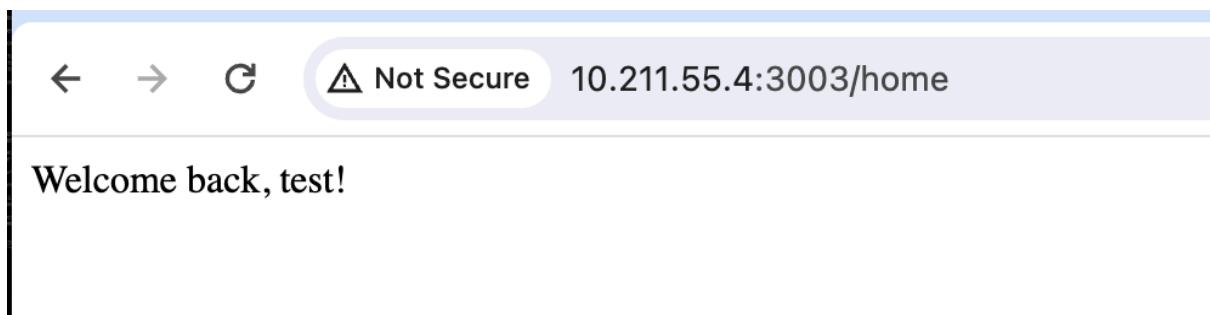
```

Output :

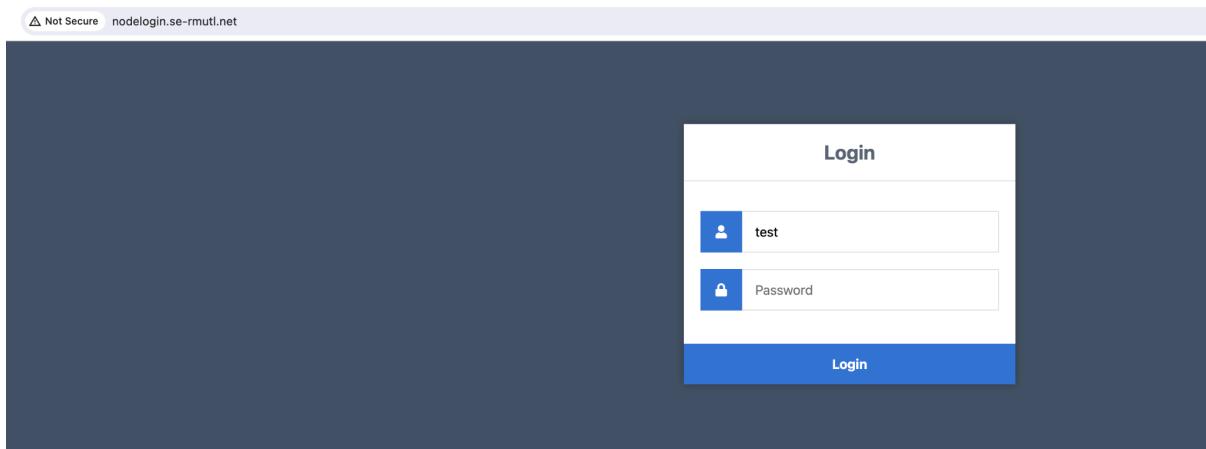
<http://10.211.55.4:3003/>



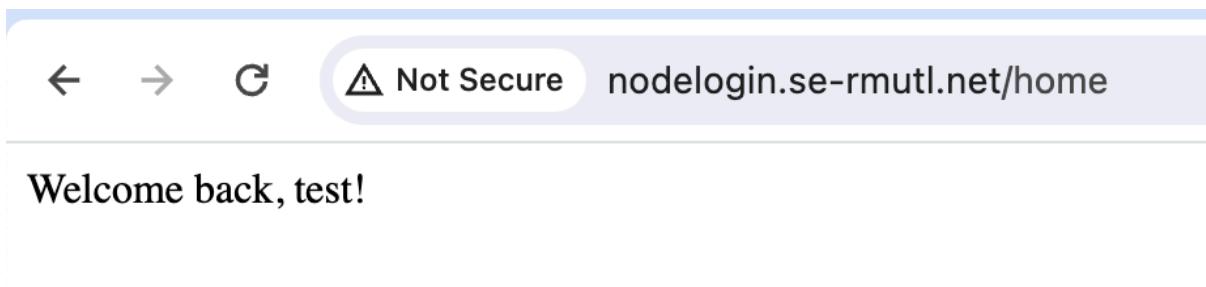
<http://10.211.55.4:3003/home>



<http://nodelogin.se-rmutil.net/>



<http://nodelogin.se-rmutil.net/home>



Step 6 - 7

Step 6.1

สร้างไฟล์เดอร์ client (ผ่านตั้งเป็น weblogin ไปแล้ว)

```
devuser@webserver020:/var/www/lab4$ cd weblogin
devuser@webserver020:/var/www/lab4/weblogin$ npx create-react-app weblogin020

Creating a new React app in /var/www/lab4/weblogin/weblogin020.

Installing packages. This might take a couple of minutes.
Installing react, react-dom, and react-scripts with cra-template...

added 1484 packages in 41s

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

จากนั้นสร้างไฟล์เดอร์ react

```
GNU nano 6.2                                     package.json
[{"name": "weblogin020",
 "version": "0.1.0",
 "private": true,
 "dependencies": {
     "@testing-library/jest-dom": "^5.17.0",
     "@testing-library/react": "^13.4.0",
     "@testing-library/user-event": "^13.5.0",
     "react": "^18.2.0",
     "react-dom": "^18.2.0",
     "react-scripts": "5.0.1",
     "web-vitals": "^2.1.4"
 },
 "scripts": {
     "start": "PORT=3004 react-scripts start",
     "build": "react-scripts build",
     "test": "react-scripts test",
     "eject": "react-scripts eject"
 },
```

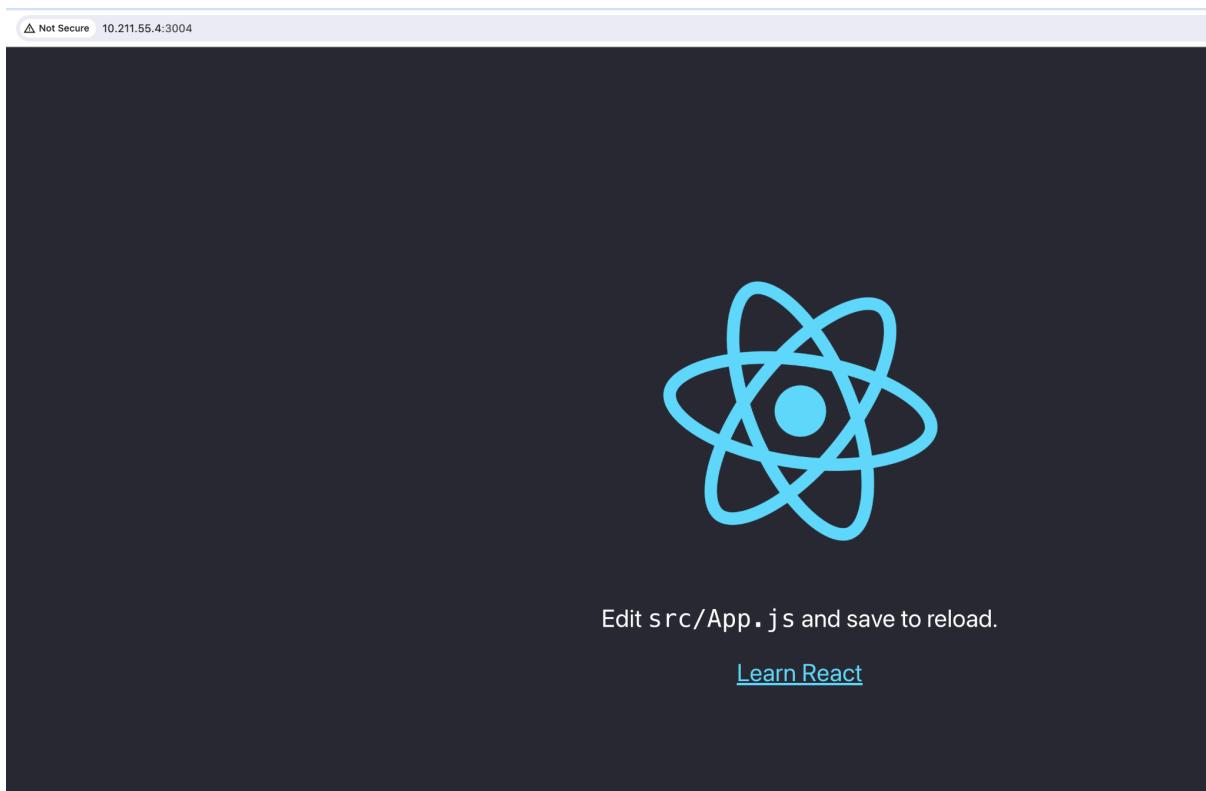
sudo nano เข้า package.json และเปลี่ยนหมายเลข port เป็น 3004

```
root@webserver020:~# ufw allow 3004
Rule added
Rule added (v6)
root@webserver020:~# ufw allow status
ERROR: Could not find a profile matching 'status'
root@webserver020:~# ufw status
Status: active

To                         Action      From
--                         --          --
OpenSSH                     ALLOW       Anywhere
Apache                      ALLOW       Anywhere
Nginx Full                  ALLOW       Anywhere
3333                       ALLOW       Anywhere
3000                       ALLOW       Anywhere
3001                       ALLOW       Anywhere
3002                       ALLOW       Anywhere
3003                       ALLOW       Anywhere
3004                       ALLOW       Anywhere
OpenSSH (v6)                 ALLOW       Anywhere (v6)
Apache (v6)                  ALLOW       Anywhere (v6)
Nginx Full (v6)              ALLOW       Anywhere (v6)
3333 (v6)                   ALLOW       Anywhere (v6)
3000 (v6)                   ALLOW       Anywhere (v6)
3001 (v6)                   ALLOW       Anywhere (v6)
3002 (v6)                   ALLOW       Anywhere (v6)
3003 (v6)                   ALLOW       Anywhere (v6)
3004 (v6)                   ALLOW       Anywhere (v6)
```

ถ้าเข้าไม่ได้ให้ทำการอนุญาติให้ port 3004 ใช้ได้ก่อน ดังรูป

ทดสอบลองเข้าเว็บ



<http://10.211.55.4:3004/>

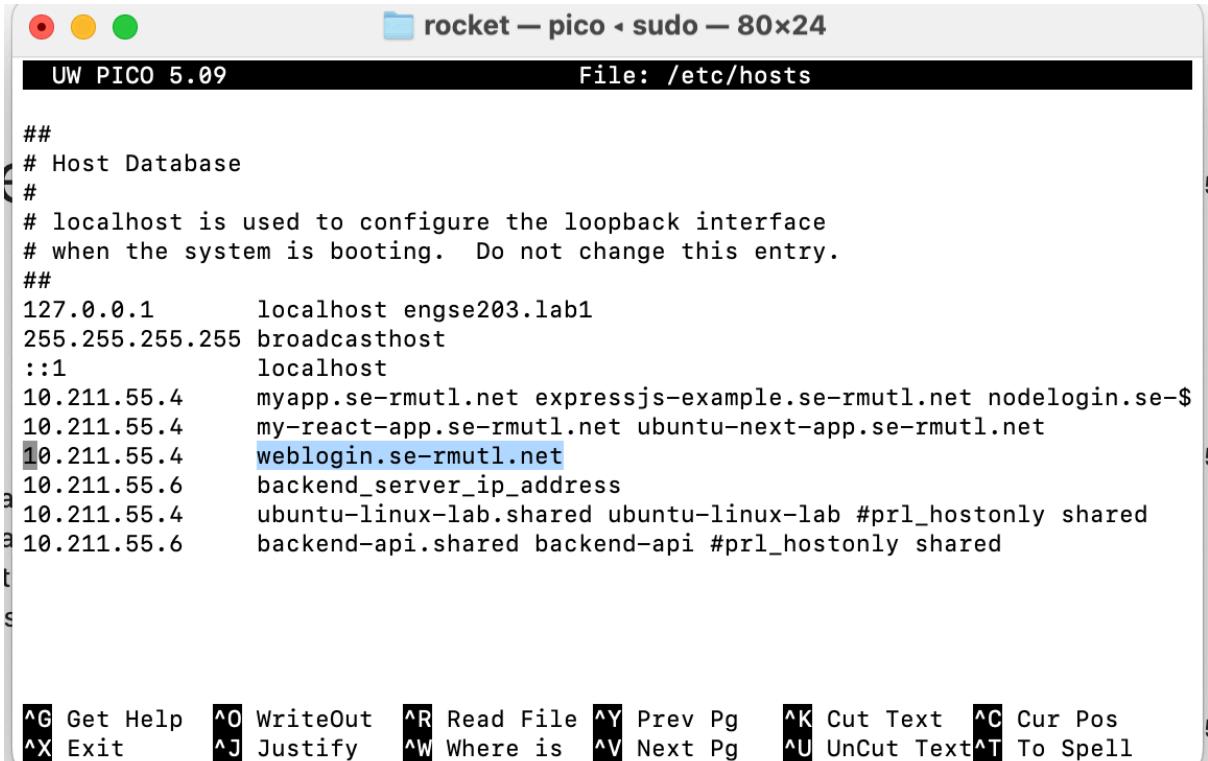
เข้าไปเพิ่มโดเมนใน nginx

```
devuser@webserver020:~$ cd /etc/nginx/sites-available/
devuser@webserver020:/etc/nginx/sites-available$ sudo cp myapp weblogin
[sudo] password for devuser:
devuser@webserver020:/etc/nginx/sites-available$ ls
default expressjs-example myapp my-react-app nodelogin ubuntu-next-app weblogin
devuser@webserver020:/etc/nginx/sites-available$ sudo nano weblogin
devuser@webserver020:/etc/nginx/sites-available$ █
```

```
GNU nano 6.2                                         weblogin *
server {
    listen 80 ;
    listen [::]:80 ;
    server_name weblogin.se-rmutil.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;
    }
}
```

แล้วเข้าไปเพิ่มโดเมนใน /etc/hosts ของ mac ด้วย



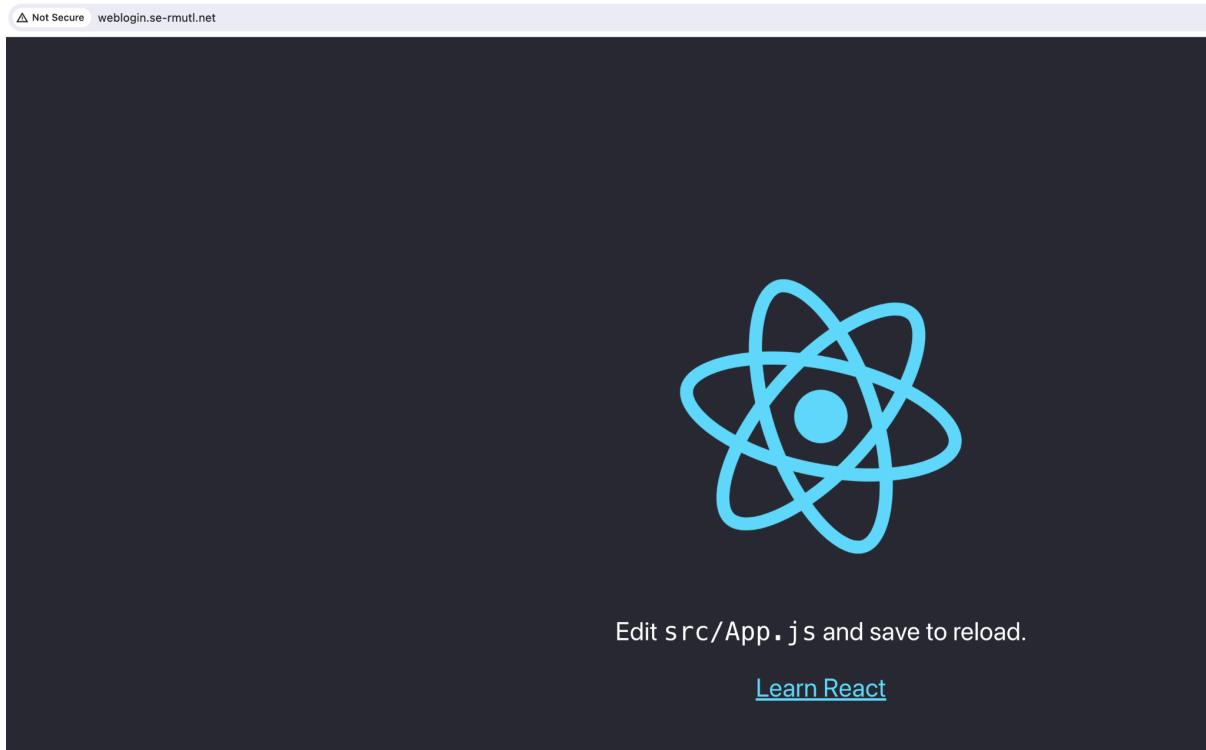
The screenshot shows a terminal window titled "rocket — pico - sudo — 80x24". The title bar also includes "File: /etc/hosts". The text in the editor is as follows:

```
##  
# Host Database  
#  
# localhost is used to configure the loopback interface  
# when the system is booting. Do not change this entry.  
##  
127.0.0.1      localhost engse203.lab1  
255.255.255.255 broadcasthost  
::1            localhost  
10.211.55.4    myapp.se-rmutil.net expressjs-example.se-rmutil.net nodelogin.se-$  
10.211.55.4    my-react-app.se-rmutil.net ubuntu-next-app.se-rmutil.net  
10.211.55.4    weblogin.se-rmutil.net  
10.211.55.6    backend_server_ip_address  
10.211.55.4    ubuntu-linux-lab.shared ubuntu-linux-lab #prl_hostonly shared  
10.211.55.6    backend-api.shared backend-api #prl_hostonly shared
```

At the bottom of the screen, there is a menu of keyboard shortcuts:

```
^G Get Help  ^O WriteOut  ^R Read File  ^Y Prev Pg   ^K Cut Text  ^C Cur Pos  
^X Exit      ^J Justify   ^W Where is   ^V Next Pg   ^U UnCut Text ^T To Spell
```

ทดสอบลองเข้าเว็บ



weblogin.se-rmutl.net

จากนั้นเข้า vscode remote เข้า ip เครื่อง devuser@10.211.55.4
แล้วเข้ามาที่ไฟล์เดอร์ weblogin

- เข้าไปที่ src
- เพิ่ม App.css , App.test.js , App.js , index.js
- ใส่โค้ดทุกหน้าให้ครบ และจัดเรียงใหม่

EXPLORER ...

WEBLOGIN020 [SSH: 10.211.55.4]

- > node_modules
- > public
- src
 - # App.css
 - JS App.js
 - JS App.test.js
 - # index.css
 - JS index.js**
 - logo.svg
 - JS reportWebVitals.js
 - JS setupTests.js
 - .gitignore
 - { package-lock.json
 - { package.json
 - README.md

JS App.js JS index.js # App.css

```

src > JS index.js
1 import React from 'react';
2 import ReactDOM from 'react-dom';
3 import './App.css';
4 import App from './App';
5
6 ReactDOM.render(
7   <React.StrictMode>
8     <App />
9   </React.StrictMode>,
10  document.getElementById('root')
11 );

```

index.js

EXPLORER ...

WEBLOGIN020 [SSH: 1...]

- > node_modules
- > public
- src
 - # App.css
 - JS App.js**
 - JS App.test.js
 - # index.css
 - JS index.js
 - logo.svg
 - JS reportWebVitals.js
 - JS setupTests.js
 - .gitignore
 - { package-lock.json
 - { package.json
 - README.md

JS App.js JS index.js # App.css

```

src > JS App.js > [e] default
1 import React, { useEffect, useState } from "react";
2 import Axios from 'axios';
3 import './App.css';
4
5 function App() {
6
7   const [usernameReg, setUsernameReg] = useState("");
8   const [passwordReg, setPasswordReg] = useState ("");
9
10  const [username, setUsername] = useState("");
11  const [password, setPassword] = useState ("");
12
13  const [loginStatus, setLoginStatus] = useState("");
14
15  const register = () => {
16    Axios.post("http://localhost:3001/register", {
17      username: usernameReg,
18      password: passwordReg,
19    }).then((response) => {
20      console.log(response);
21    });
22  };
23
24  const login = () => {
25    Axios.post("http://localhost:3001/login", {
26      username: username,
27      password: password,
28    }).then((response) => {
29      if (!response.data.message) {
30        setLoginStatus( response.data.message);
31      } else {
32        setLoginStatus (response.data[0].message);
33      }
34    });
35  };
36

```

App.js

The screenshot shows a terminal or code editor interface. On the left, the file structure is listed under 'EXPLORER' for 'WEBLOGINO20 [SSH: 10.211.55.4]'. It includes 'node_modules', 'public', and 'src' directories. Inside 'src', there are files: 'App.js', 'index.css', 'index.js', 'logo.svg', 'reportWebVitals.js', 'setupTests.js', '.gitignore', 'package-lock.json', 'package.json', and 'README.md'. The current file being edited is 'App.css'. The code in 'App.css' is as follows:

```
src > # App.css > input
1 .App {
2   text-align: center;
3 }
4
5 .registration {
6   display: flex;
7   flex-direction: column;
8   justify-content: center;
9   align-items: center;
10 }
11
12 .login {
13   display: flex;
14   flex-direction: column;
15   justify-content: center;
16   align-items: center;
17 }
18 input {
19   width: 250px;
20   height: 40px;
21 }
```

App.css

ทดสอบลองรัน

The screenshot shows a web browser window with the title 'Not Secure 10.211.55.4:3004'. The page contains two forms: 'Registration' and 'Login'.

Registration

Username

password

Login

Username...

Password...

<http://10.211.55.4:3004/>

Not Secure weblogin.se-rmutil.net

Registration

Username

password

Login

Username...

Password...

<http://weblogin.se-rmutil.net/>

Step 6.2

```
devuser@webserver020:/var/www/lab4$ mkdir server
devuser@webserver020:/var/www/lab4$ cd server
devuser@webserver020:/var/www/lab4/server$ npm init
This utility will walk you through creating a package.json file.
It only covers the most common items, and tries to guess sensible defaults.
```

See `npm help init` for definitive documentation on these fields
and exactly what they do.

Use `npm install <pkg>` afterwards to install a package and
save it as a dependency in the package.json file.

Press ^C at any time to quit.

```
package name: (server)
version: (1.0.0)
description:
entry point: (index.js)
test command:
git repository:
keywords:
author:
license: (ISC)
About to write to /var/www/lab4/server/package.json:
```

```
{
  "name": "server",
  "version": "1.0.0",
  "description": "",
  "main": "index.js",
  "scripts": {
    "test": "echo \\\"Error: no test specified\\\" && exit 1"
  },
  "author": "",
  "license": "ISC"
}
```

Is this OK? (yes) yes

```
devuser@webserver020:/var/www/lab4/server$
```

สร้างโฟลเดอร์ server ใน lab4 เมื่อก่อนกับ client และ cd เข้าไป
npm init เพื่อสร้าง express

```
[10:47:00 AM] [988]: ~$ devuser@webserver020:/var/www/lab4/server$ npm install express --save  
added 62 packages, and audited 63 packages in 4s  
11 packages are looking for funding  
  run `npm fund` for details  
  
found 0 vulnerabilities  
devuser@webserver020:/var/www/lab4/server$ npm install --save mysql2  
  
added 11 packages, and audited 74 packages in 12s  
11 packages are looking for funding  
  run `npm fund` for details  
  
found 0 vulnerabilities  
devuser@webserver020:/var/www/lab4/server$ npm i --save cors  
  
added 2 packages, and audited 76 packages in 996ms  
11 packages are looking for funding  
  run `npm fund` for details  
  
found 0 vulnerabilities  
devuser@webserver020:/var/www/lab4/server$ sudo npm install -g nodemon  
[sudo] password for devuser:  
  
changed 33 packages in 1s  
  
3 packages are looking for funding  
  run `npm fund` for details  
npm notice  
npm notice New patch version of npm available! 10.2.3 -> 10.2.5  
npm notice Changelog: https://github.com/npm/cli/releases/tag/v10.2.5  
npm notice Run npm install -g npm@10.2.5 to update!  
npm notice
```

ถ้าติดตั้งไม่ได้ ให้ติดตั้งให้ครบ

```

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 (0.02 sec)

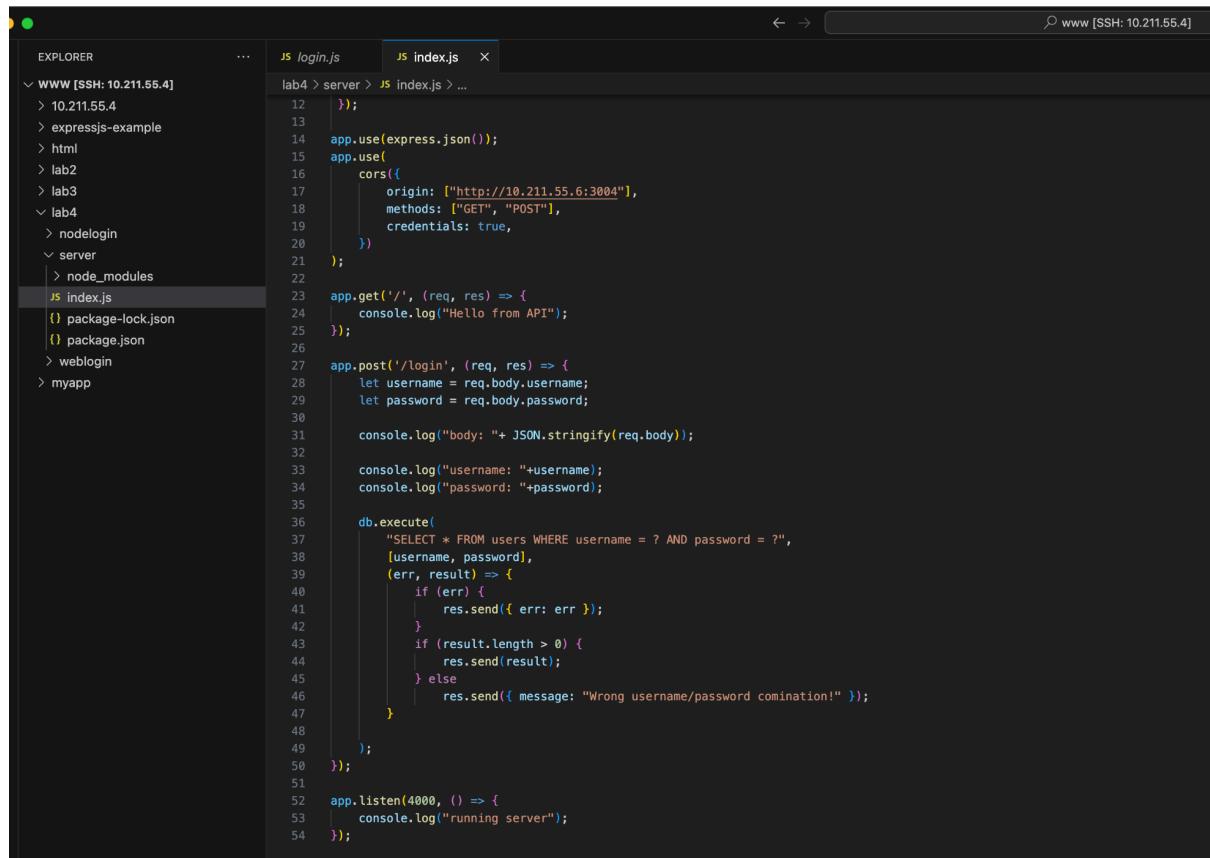
mysql> USE loginsystem;
Database changed
mysql> INSERT INTO `users`(`username`, `password`) VALUES ('test', 'test');
Query OK, 1 row affected (0.01 sec)

mysql> select * from users;
+-----+-----+
| username | password |
+-----+-----+
| test     | test      |
+-----+-----+
1 row in set (0.00 sec)

mysql> 

```

เสร็จแล้ว เข้าไปสร้าง db ชื่อว่า loginsystem และสร้างตารางชื่อ users จากนั้นก็เพิ่มข้อมูลเข้าไป และก็ทำการตรวจสอบข้อมูลในตารางว่าเข้ารีบยัง



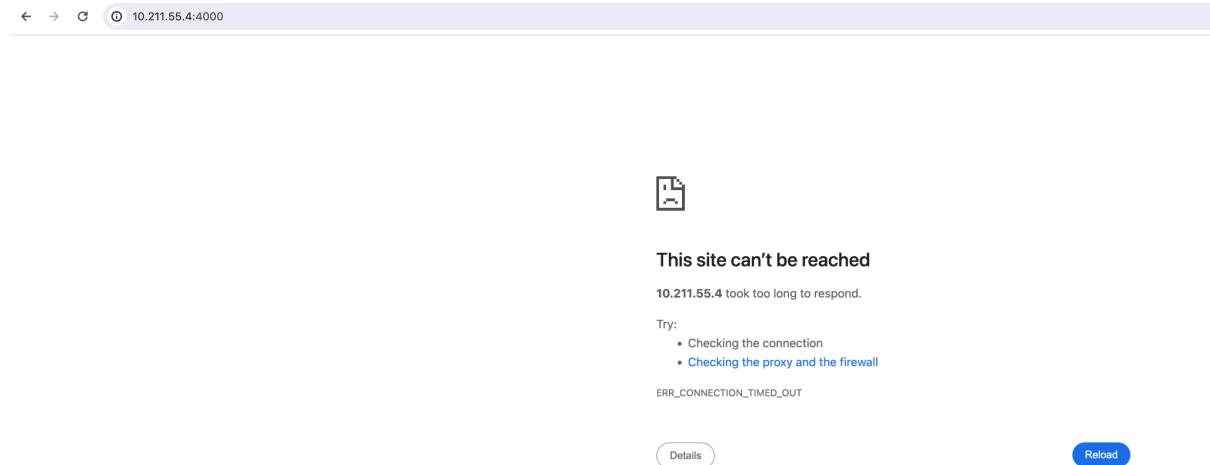
The screenshot shows a terminal window with the following content:

```

EXPLORER          ...
WWW [SSH: 10.211.55.4]  ...
> 10.211.55.4
> expressjs-example
> html
> lab2
> lab3
> lab4
> nodelogin
> server
> node_modules
JS index.js  x
lab4 > server > JS index.js > ...
12  );
13
14 app.use(express.json());
15 app.use(
16   cors({
17     origin: ["http://10.211.55.6:3004"],
18     methods: ["GET", "POST"],
19     credentials: true,
20   })
21 );
22
23 app.get('/', (req, res) => {
24   console.log("Hello from API");
25 });
26
27 app.post('/login', (req, res) => {
28   let username = req.body.username;
29   let password = req.body.password;
30
31   console.log("body: " + JSON.stringify(req.body));
32
33   console.log("username: "+username);
34   console.log("password: "+password);
35
36   db.execute(
37     "SELECT * FROM users WHERE username = ? AND password = ?",
38     [username, password],
39     (err, result) => {
40       if (err) {
41         res.send({ err: err });
42       }
43       if (result.length > 0) {
44         res.send(result);
45       } else {
46         res.send({ message: "Wrong username/password comination!" });
47       }
48     });
49   });
50
51 app.listen(4000, () => {
52   console.log("running server");
53 });
54 );

```

เข้า vscode remote เข้า ip เครื่อง 10.211.55.4
สร้าง index.js ในโฟลเดอร์ server และใส่ข้อมูลให้ครบ และแก้ไข^{หมายเลข port เป็น 4000 และเริ่มทดสอบ}



<http://10.211.55.4:4000/>

A screenshot of the VS Code interface, specifically focusing on the Terminal tab. The terminal window shows the following content:

```
res.send('message: "Wrong username/password combination!"');
}

Node.js v20.10.0
devuser@webserver020:/var/www/lab4/server$ node index.js
running server
Hello from API
Hello from API
Hello from API
```

The terminal tabs at the top include PROBLEMS, OUTPUT, DEBUG CONSOLE, TERMINAL (which is selected), and PORTS.

ข้อความจาก API

ทดสอบการทำงานทั้งหมด

Not Secure 10.211.55.4:3004

Registration

Username

password

Register

Login

test

....

Login

'test' was logged in.

Registration

Username

rocket

password

123

Register

⚠ Not Secure 10.211.55.4:3004

Registration

Username

password

Login

Username...

Password...

'rocket' was inserted.

```
○ devuser@webserver020:/var/www/lab4/server$ node index.js
running server
body: {"username":"rocket","password":"123"}
username: rocket
password: 123
□
```

Login

'rocket' was logged in.

```
○ devuser@webserver020:/var/www/lab4/server$ node index.js
running server
body: {"username":"rocket","password":"123"}
username: rocket
password: 123
body: {"username":"rocket","password":"123"}
username: rocket
password: 123
□
```

Step 7

เข้า ubuntu เครื่องใหม่ ทำการเปลี่ยนชื่อ server เป็น backendXXX

```
[sudo] password for devuser:  
devuser@backend020:/var$ cd /var/www/lab4  
devuser@backend020:/var/www/lab4$ sudo chown -R $USER:$USER /var/www/lab4  
devuser@backend020:/var/www/lab4$ mkdir server  
devuser@backend020:/var/www/lab4$ cd server
```

- สร้างโฟลเดอร์ /var/www/lab4
- มอบสิทธิ์ให้ user เข้าได้
- สร้างโฟลเดอร์ server
- เข้าโฟลเดอร์ server

```
NO VNC guests are running currently.  
devuser@backend020:~$ node -v  
v20.10.0  
devuser@backend020:~$ npm -v  
10.2.3
```

ติดตั้ง nodejs และ express

```
devuser@backend020:~$ npm install express-session --save  
added 5 packages, and audited 68 packages in 16s  
  
11 packages are looking for funding  
  run `npm fund` for details  
  
found 0 vulnerabilities  
devuser@backend020:~$ npm install body-parser  
  
added 2 packages, changed 2 packages, and audited 70 packages in 15s  
  
11 packages are looking for funding  
  run `npm fund` for details  
  
found 0 vulnerabilities  
devuser@backend020:~$ npm install mysql2 --save  
  
added 11 packages, and audited 81 packages in 9s  
  
11 packages are looking for funding  
  run `npm fund` for details  
  
found 0 vulnerabilities  
devuser@backend020:~$
```

ติดตั้งเครื่องมือให้ครบ

```
devuser@backend020:/var/www/lab4/server$ npm init
This utility will walk you through creating a package.json file.
It only covers the most common items, and tries to guess sensible def
See `npm help init` for definitive documentation on these fields
and exactly what they do.

Use `npm install <pkg>` afterwards to install a package and
save it as a dependency in the package.json file.

Press ^C at any time to quit.
package name: (server)
version: (1.0.0)
description:
entry point: (index.js)
test command:
git repository:
keywords:
author:
license: (ISC)
About to write to /var/www/lab4/server/package.json:

{
  "name": "server",
  "version": "1.0.0",
  "description": "",
  "main": "index.js",
  "scripts": {
    "test": "echo \\\"Error: no test specified\\\" && exit 1"
  },
  "author": "",
  "license": "ISC"
}

Is this OK? (yes) yes
devuser@backend020:/var/www/lab4/server$ npm i --save cors

added 3 packages, and audited 4 packages in 762ms
```

npm init เพื่อสร้างไฟล์ express

sudo mysql เข้ามา และทำการเพิ่มสิทธิ์ให้กับ root เข้า mysql ได้

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

mysql> FLUSH PRIVILEGES;
Query OK, 0 rows affected (0.01 sec)
```

```
devuser@backend020:/var/www/lab4/server$ sudo mysql
ERROR 1045 (28000): Access denied for user 'root'@'localhost' (using password: NO)
devuser@backend020:/var/www/lab4/server$ mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 19
Server version: 8.0.35-0ubuntu0.22.04.1 (Ubuntu)

Copyright (c) 2000, 2023, Oracle and/or its affiliates.

Oracle is a registered trademark of Oracle Corporation and/or its
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> CREATE DATABASE IF NOT EXISTS `loginsystem` DEFAULT CHARACTER SET utf8 COLLATE utf8_general_ci;
Query OK, 1 row affected, 2 warnings (0.01 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 (0.02 sec)

mysql> USE loginsystem;
Database changed
mysql> INSERT INTO `users`(`username`, `password`) VALUES ('test', 'test');
Query OK, 1 row affected (0.03 sec)

mysql> select * from users;
+-----+-----+
| username | password |
+-----+-----+
| test     | test      |
+-----+-----+
1 row in set (0.00 sec)
```

เสร็จแล้วเข้า sudo mysql ใหม่โดยใช้ root

- สร้าง database ชื่อ loginsystem
- สร้างตารางชื่อ users
- เพิ่มข้อมูลเข้าตาราง
- ตรวจสอบว่าข้อมูลเข้าหรือไม่

The screenshot shows a VS Code interface connected via SSH to a server at 10.211.55.6. The Explorer sidebar on the left lists files in a directory named 'LABA' (SSH: 10.211.55.6), including 'server', 'node_modules', 'index.js', 'package-lock.json', and 'package.json'. The main editor tab displays the 'index.js' file with the following code:

```
31 console.log("body: "+ JSON.stringify(req.body));
32
33 console.log("username: "+username);
34 console.log("password: "+password);
35
36 db.execute(
37   "SELECT * FROM users WHERE username = ? AND password = ?",
38   [username, password],
39   (err, result) => {
40     if (err) {
41       res.send({ err: err });
42     }
43     if (result.length > 0) {
44       res.send(result);
45     } else {
46       res.send({ message: "Wrong username/password combination!" });
47     }
48   }
49 );
50 });
51
52 app.post('/register', (req, res) => {
53   let username = req.body.username;
54   let password = req.body.password;
55
56   console.log("body: "+ JSON.stringify(req.body));
57
58   console.log("username: "+username);
59   console.log("password: "+password);
60
61   db.execute(
62     "INSERT INTO users (username, password) VALUES (?,?)",
63     [username, password],
64     (err, result) => {
65       if (err) {
66         res.send({ err: err });
67       }
68       res.send(result);
69     }
70   );
71 });
72
73 app.listen(4000, () => {
74   console.log("Running server");
75 });
76 }
```

เข้า vscode และ remote เข้า ip เครื่อง devuser@10.211.55.6
เข้าไปที่โฟลเดอร์ /var/www/lab4/server

- สร้างไฟล์ index.js
- ใส่โคดให้ครบ
- แก้ไข example_users เป็น users ที่เราจะใส่
- แก้ไข port เป็น 4000

กลับไปที่ webserver เข้าไปที่ /etc/nginx/sites-available
cp อันเก่ามาในไฟล์ใหม่ชื่อ backend

```
devuser@webserver020:/etc/nginx$ cd /etc/nginx/sites-available/
devuser@webserver020:/etc/nginx/sites-available$ ls
default expressjs-example myapp my-react-app nodelogin ubuntu-next-app weblogin
devuser@webserver020:/etc/nginx/sites-available$ sudo cp weblogin backend
devuser@webserver020:/etc/nginx/sites-available$ sudo nano backend
```

```
GNU nano 6.2                                     backend *
server {
    listen 80 ;
    listen [::]:80 ;
    server_name backend_server_ip_address;

    location / {
        proxy_pass http://127.0.0.1:4000; # !!! - 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;
    }
}
```

เปลี่ยนชื่อโดเมนและเลข port (ยังไม่มีชื่อ ผມเลยใส่ตามโจทย์ไปเลย
ครับ)

```
● ○ ● rocket — pico - sudo — 80x24
UW PICO 5.09                               File: /etc/hosts

## 
# Host Database
#
# localhost is used to configure the loopback interface
# when the system is booting. Do not change this entry.
##
127.0.0.1      localhost engse203.lab1
255.255.255.255 broadcasthost
::1            localhost
10.211.55.4    myapp.se-rmutil.net expressjs-example.se-rmutil.net nodelogin.se-
10.211.55.4    my-react-app.se-rmutil.net ubuntu-next-app.se-rmutil.net
10.211.55.4    weblogin.se-rmutil.net
10.211.55.6    backend_server_ip_address
10.211.55.4    ubuntu-linux-lab.shared ubuntu-linux-lab #prl_hostonly shared
10.211.55.6    backend-api.shared backend-api #prl_hostonly shared

^G Get Help  ^O WriteOut  ^R Read File  ^Y Prev Pg   ^K Cut Text  ^C Cur Pos
^X Exit      ^J Justify   ^W Where is  ^V Next Pg   ^U UnCut Text ^T To Spell
```

เพิ่มโดเมนเข้า /etc/hosts ของเครื่อง

จากนั้นทดสอบอีก

① 10.211.55.6:4000



This site can't be reached

10.211.55.6 refused to connect.

Try:

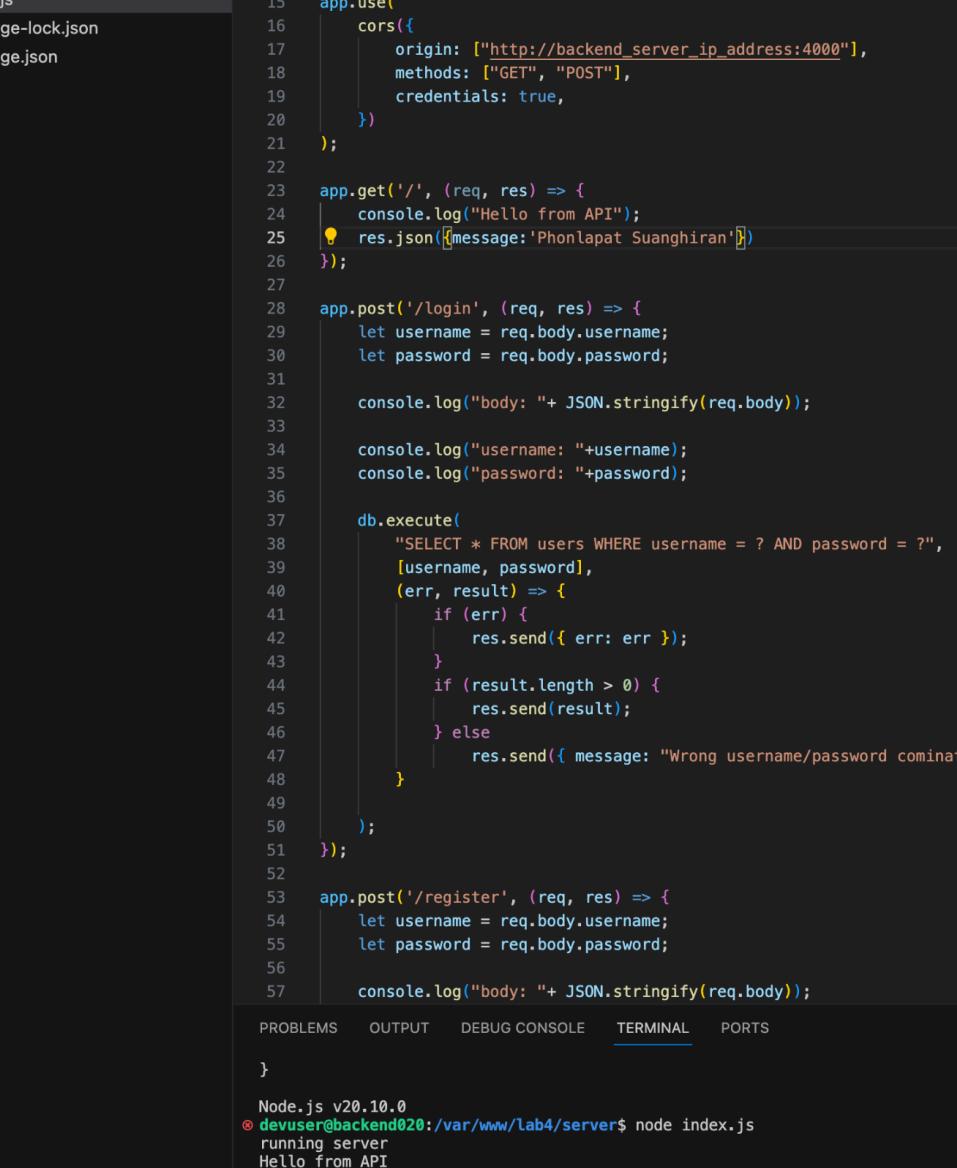
- Checking the connection
- [Checking the proxy and the firewall](#)

ERR_CONNECTION_REFUSED

[Details](#)

[Reload](#)

<http://10.211.55.6:4000/>



The screenshot shows a terminal window with the following content:

```
devuser@backend020:/var/www/lab4/server$ node index.js
running server
Hello from API
^C
devuser@backend020:/var/www/lab4/server$ node index.js
running server
Hello from API
^C
devuser@backend020:/var/www/lab4/server$ node index.js
running server
Hello from API
[]
```

<http://10.211.55.4:4000/>