

Lab3

Create Reactjs App

- สร้าง directory lab3 จากนั้นกำหนด owner ให้ user ใช้เป็น lab3
- จากนั้น cd เข้าโฟลเดอร์
- แล้วเริ่มสร้างโฟลเดอร์ reactjs

```
devuser@server:~$ cd /var/www/
```

```
devuser@server:/var/www$ sudo mkdir lab3
```

```
devuser@server:/var/www$ sudo chown -R $USER:$USER lab3
```

```
devuser@server:/var/www$ cd lab3
```

- npx create-react-app my-react-app

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

```
added 1463 packages in 1m
```

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

```
Initialized a git repository.
```

```
Installing template dependencies using npm...
```

```
added 69 packages, and changed 1 package in 5s
```

```
246 packages are looking for funding  
  run `npm fund` for details  
Removing template package using npm...
```

```
removed 1 package, and audited 1532 packages in 6s
```

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

```
8 vulnerabilities (2 moderate, 6 high)
```

```
To address all issues (including breaking changes), run:  
  npm audit fix --force
```

```
Run `npm audit` for details.
```

```
Created git commit.
```

```
Success! Created my-react-app at /var/www/Lab3/my-react-app  
Inside that directory, you can run several commands:
```

```
npm start  
  Starts the development server.
```

```
npm run build  
  Bundles the app into static files for production.
```

```
npm test  
  Starts the test runner.
```

```
npm run eject  
  Removes this tool and copies build dependencies, configuration files  
  and scripts into the app directory. If you do this, you can't go back!
```

```
We suggest that you begin by typing:
```

```
cd my-react-app  
npm start
```

```
Happy hacking!
```

```
devuser@server:/var/www/Lab3$
```

- จากนั้นใช้ `cd my-react-app`

```
devuser@server: /var/www/lab3$ cd my-react-app
```

- แล้วใช้คำสั่ง `npm start`
- จากนั้นเปลี่ยนหมายเลข port จาก 3000 เป็น 3001 โดยใช้คำสั่ง `nano package.json`

```
devuser@server: /var/www/lab3/my-react-app$ sudo nano package.json
```

- เติมในส่วน `start` เพิ่ม `PORT=3001` ไปยังด้านหน้า `react-scripts`

```
GNU nano 6.2 package.json *
{
  "name": "my-react-app",
  "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=3001 react-scripts start",
    "build": "react-scripts build",
    "test": "react-scripts test",
    "eject": "react-scripts eject"
  },
  "eslintConfig": {
    "extends": [
      "react-app",
      "react-app/jest"
    ]
  },
  "browserslist": {
    "production": [
      ">0.2%",
      "not dead",
      "not op_mini all"
    ],
    "development": [
      "last 1 chrome version",
      "last 1 firefox version",
      "last 1 safari version"
    ]
  }
}
```

^G Help	^O Write Out	^W Where Is	^K Cut	^T Execute	^C Location
^X Exit	^R Read File	^\\ Replace	^U Paste	^J Justify	^_ Go To Line

- จากนั้นใช้คำสั่ง `ufw allow 3001` อนุญาตให้รันโดยไม่ติด firewall

```
devuser@server:/var/www/lab3/my-react-app$ sudo ufw allow 3001
Rule added
Rule added (v6)
```

- แล้วใช้คำสั่ง `npm start` จากนั้นทดสอบว่ารันได้ไหม



- จากนั้นใช้คำสั่ง `cd /etc/nginx/sites-available`
- แล้วทำการก๊อปปี้ตัว default ที่ใช้ได้มา

```
devuser@server:/var/www/lab3/my-react-app$ cd /etc/nginx/sites-available
devuser@server:/etc/nginx/sites-available$ sudo cp default my-react-app
[sudo] password for devuser:
devuser@server:/etc/nginx/sites-available$ sudo nano my-react-app
devuser@server:/etc/nginx/sites-available$
```

- เข้าไปกำหนดเลข port และชื่อโดเมน

```
GNU nano 6.2 my-react-app *
# of Nginx configuration files in order to fully unleash the power of Nginx.
# https://www.nginx.com/resources/wiki/start/
# https://www.nginx.com/resources/wiki/start/topics/tutorials/config_pitfalls/
# https://wiki.debian.org/Nginx/DirectoryStructure
#
# In most cases, administrators will remove this file from sites-enabled/ and
# leave it as reference inside of sites-available where it will continue to be
# used.

server {
    listen 80;
    listen [::]:80;
    # listen 443 ssl default_server;
    # listen [::]:443 ssl default_server;
    #
    # Note: You should disable gzip for SSL traffic.
    # See: https://bugs.debian.org/773332
    #
    # Add index.php to the list if you are using PHP
    #index index.html index.htm index.nginx-debian.html;

    server_name my-react-app.se-rmutl.net;;

    location / {
        # First attempt to serve request as file, then
        # as directory, then fall back to displaying a 404.
        proxy_pass http://127.0.0.1:3001; # !!! - 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;

    }
}
```

- จากนั้น cd เพื่อย้อนกลับแล้วใช้ restart nginx ใหม่ จากนั้นก็เข้า terminal

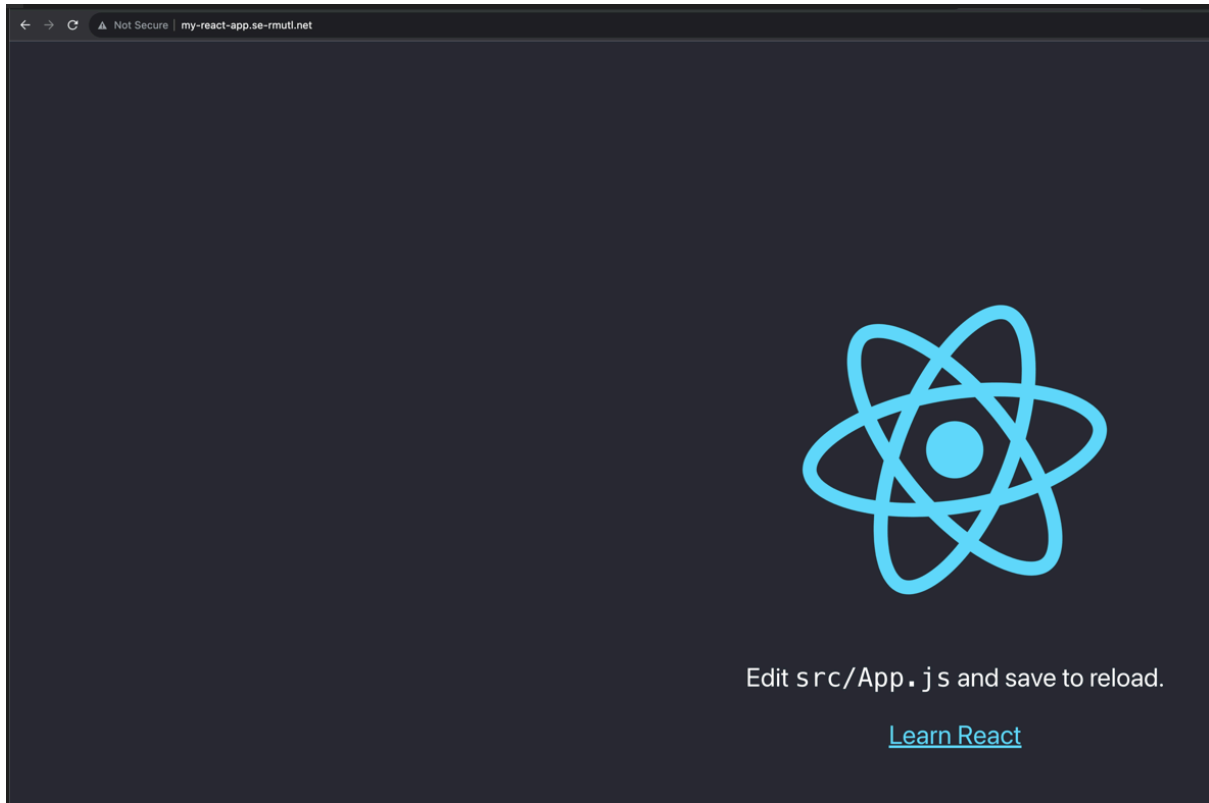
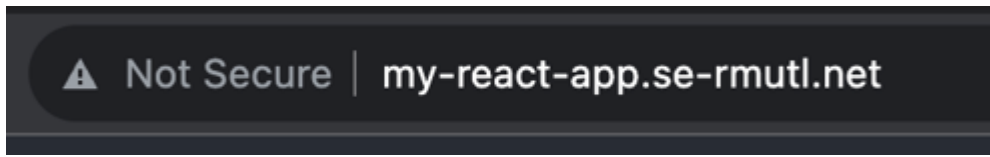
```
devuser@server:~$ sudo systemctl restart nginx
```

- แล้ว cd เข้าไปที่ /etc/hosts เข้าไปเพิ่มโดเมนใน ip เพื่อให้ mac สามารถเปิดโดเมนนี้ได้

```
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
10.211.55.3 myapp.se-rmutl.net expressjs-example.se-rmutl.net
10.211.55.3 my-react-app.se-rmutl.net

^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
```

- ลองทดสอบเข้า reactjs โดยใช้ domain name



Create Nextjs App

- คำสั่งสร้าง app โดยใช้ nextjs

```
devuser@server:/var/www/lab3$ npx create-next-app@latest ubuntu-next-app
Need to install the following packages:
create-next-app@14.0.4
Ok to proceed? (y) y
✓ Would you like to use TypeScript? ... No / Yes
✓ Would you like to use ESLint? ... No / Yes
✓ Would you like to use Tailwind CSS? ... No / Yes
✓ Would you like to use `src/` directory? ... No / Yes
✓ Would you like to use App Router? (recommended) ... No / Yes
✓ Would you like to customize the default import alias (@/*)? ... No / Yes
Creating a new Next.js app in /var/www/lab3/ubuntu-next-app.

Using npm.

Initializing project with template: app-tw

Installing dependencies:
- react
- react-dom
- next

Installing devDependencies:
- typescript
- @types/node
- @types/react
- @types/react-dom
- autoprefixer
- postcss
- tailwindcss
- eslint
- eslint-config-next

added 333 packages, and audited 334 packages in 16s

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

found 0 vulnerabilities
Success! Created ubuntu-next-app at /var/www/lab3/ubuntu-next-app
devuser@server:/var/www/lab3$
```

- Nano เข้า package.json ของ Nextjs เพื่อเข้าไปเปลี่ยนเลข Port

```
devuser@server:/var/www/lab3/ubuntu-next-app$ sudo nano package.json
```

- เพิ่ม -p 3002 ใน package.json ของ Nextjs

```
GNU nano 6.2 package.json
{
  "name": "ubuntu-next-app",
  "version": "0.1.0",
  "private": true,
  "scripts": {
    "dev": "next dev -p 3002",
    "build": "next build",
    "start": "next start -p 3002",
    "lint": "next lint"
  },
  "dependencies": {
    "react": "^18",
    "react-dom": "^18",
    "next": "14.0.4"
  },
  "devDependencies": {
    "typescript": "^5",
    "@types/node": "^20",
    "@types/react": "^18",
    "@types/react-dom": "^18",
    "autoprefixer": "^10.0.1",
    "postcss": "^8",
    "tailwindcss": "^3.3.0",
    "eslint": "^8",
    "eslint-config-next": "14.0.4"
  }
}
```

- จากนั้นใช้คำสั่ง `ufw allow 3002` อนุญาตให้รันโดยไม่ติด firewall

```
devuser@server:/var/www/lab3/ubuntu-next-app$ sudo ufw allow 3002
Rule added
Rule added (v6)
```

- ใช้คำสั่ง `build app` ก่อนทำการ start

```
devuser@server:/var/www/lab3/ubuntu-next-app$ npm run build

> ubuntu-next-app@0.1.0 build
> next build

Attention: Next.js now collects completely anonymous telemetry regarding usage.
This information is used to shape Next.js' roadmap and prioritize features.
You can learn more, including how to opt-out if you'd not like to participate in this anonymous p
rogram, by visiting the following URL:
https://nextjs.org/telemetry

  ▲ Next.js 14.0.4

  ✓ Creating an optimized production build
  ✓ Compiled successfully
  ✓ Linting and checking validity of types
  ✓ Collecting page data
  ✓ Generating static pages (5/5)
  ✓ Collecting build traces
  ✓ Finalizing page optimization

Route (app)                                Size      First Load JS
┌ ○ /                                       5.16 kB    87 kB
└ ○ /_not-found                           869 B      82.7 kB
+ First Load JS shared by all              81.8 kB
  ├ chunks/938-5e061ba0d46125b1.js         26.7 kB
  ├ chunks/fd9d1056-735d320b4b8745cb.js    53.3 kB
  ├ chunks/main-app-b0baefae49ce51a1.js    220 B
  └ chunks/webpack-327c219bf3d3ad2c.js     1.65 kB

○ (Static) prerendered as static content

devuser@server:/var/www/lab3/ubuntu-next-app$
```

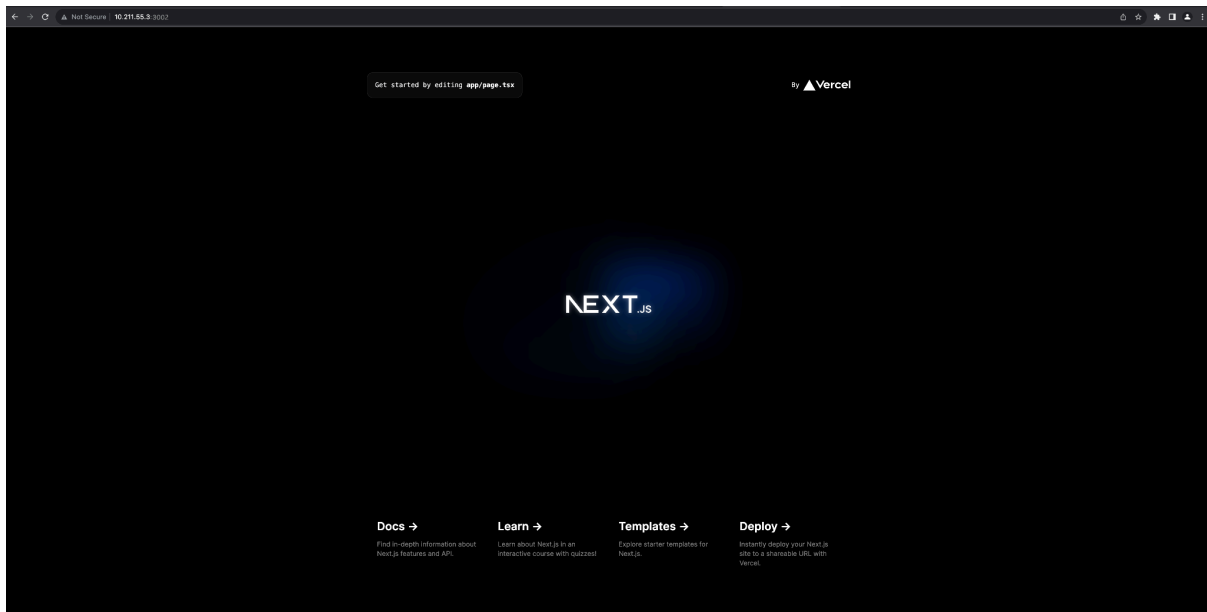
- ใช้คำสั่ง `start nextjs` เพื่อทดสอบว่ารันได้ไหม

```
devuser@server:/var/www/lab3/ubuntu-next-app$ npm start

> ubuntu-next-app@0.1.0 start
> next start

  ▲ Next.js 14.0.4
  - Local:      http://localhost:3000

✓ Ready in 195ms
```



- จากนั้นใช้ `cd` เพื่อย้อนกลับ แล้วใช้คำสั่ง `cd /etc/nginx/sites-available`
- แล้วทำการก๊อปปี้ตัว `default` ที่ใช้ได้มา

```
devuser@server:~$ cd /etc/nginx/sites-available
devuser@server:/etc/nginx/sites-available$ sudo cp default ubuntu-next-app
devuser@server:/etc/nginx/sites-available$ sudo nano ubuntu-next-app
```

- แล้วเข้าไปกำหนดเลข port และชื่อโดเมน

```
GNU nano 6.2          ubuntu-next-app *
server {
    listen 80;
    listen [::]:80;
    # SSL configuration
    # listen 443 ssl default_server;
    # listen [::]:443 ssl default_server;
    # Note: You should disable gzip for SSL traffic.
    # See: https://bugs.debian.org/773332
    # Read up on ssl_ciphers to ensure a secure configuration.
    # See: https://bugs.debian.org/765782
    server_name ubuntu-next-app.se-rmutl.net;
    location / {
        # First attempt to serve request as file, then
        proxy_pass http://127.0.0.1:3002; # !!! - 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;
    }
}
```

- จากนั้น `cd` เพื่อย้อนกลับแล้วใช้ `restart nginx` ใหม่ จากนั้นก็เข้า terminal

```
devuser@server:~$ sudo systemctl restart nginx
```

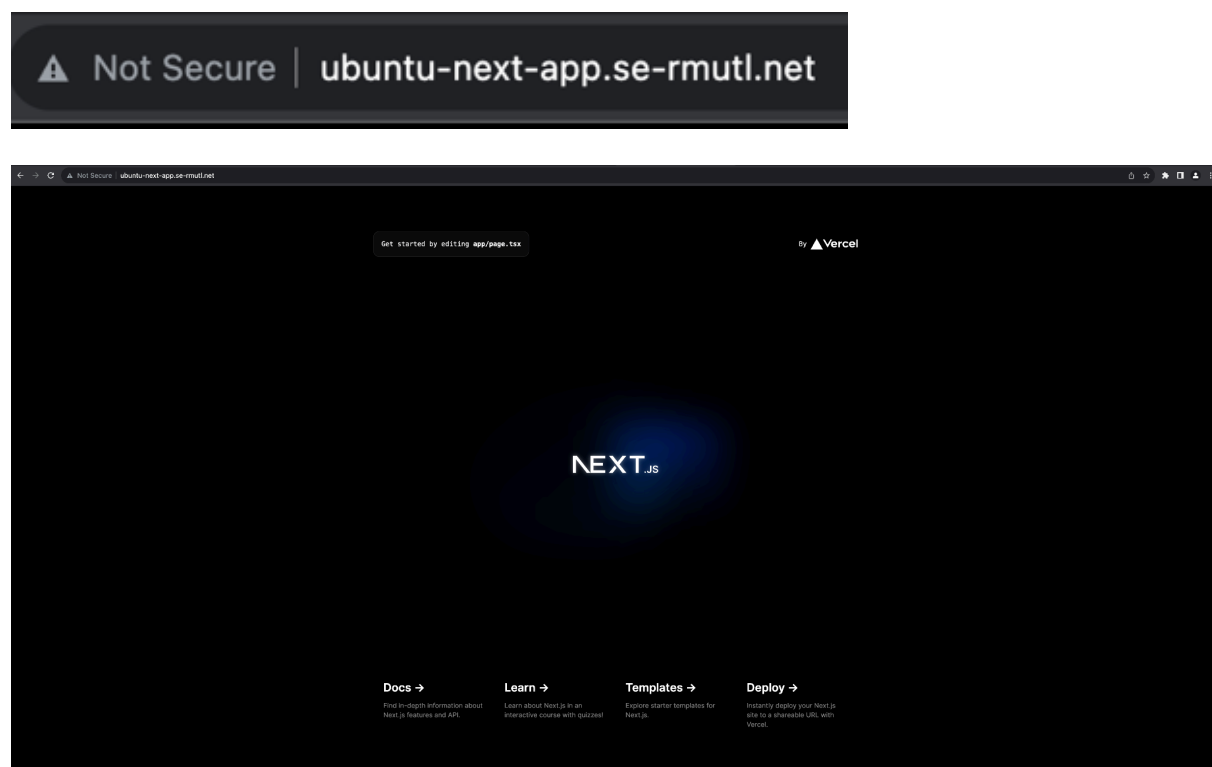

- แล้ว cd เข้าไปที่ /etc/hosts เข้าไปเพิ่มโดเมนใน ip เพื่อให้ mac สามารถเปิดโดเมนนี้ได้

```
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
10.211.55.3  myapp.se-rmutl.net expressjs-example.se-rmutl.net
10.211.55.3  my-react-app.se-rmutl.net ubuntu-next-app.se-rmutl.net

^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
```

- ลองทดสอบเข้า reactjs โดยใช้ domain name



PM2

- ทำการติดตั้ง pm2 ในไฟล์

```
devuser@server:/etc/nginx/sites-available$ sudo npm install pm2 -g
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.dev/blog/math-random for details.

added 157 packages in 7s

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

- จากนั้นทำการ cd เข้าโฟลเดอร์ของไฟล์ที่จะรัน
- แล้วทำการลองรันด้วยคำสั่งของ pm2

```
devuser@server:/var/www/lab3/my-react-app$ pm2 start npm --name my-react-app -- start
[PM2] Starting /usr/bin/npm in fork_mode (1 instance)
[PM2] Done.
```

id	name	mode	๗	status	cpu	memory
0	my-react-app	fork	0	online	0%	38.0mb

- คำสั่งหยุดรัน

```
devuser@server:/var/www/lab3/my-react-app$ pm2 stop my-react-app
[PM2] Applying action stopProcessId on app [my-react-app](ids: [ 0 ])
[PM2] [my-react-app](0) ✓
```

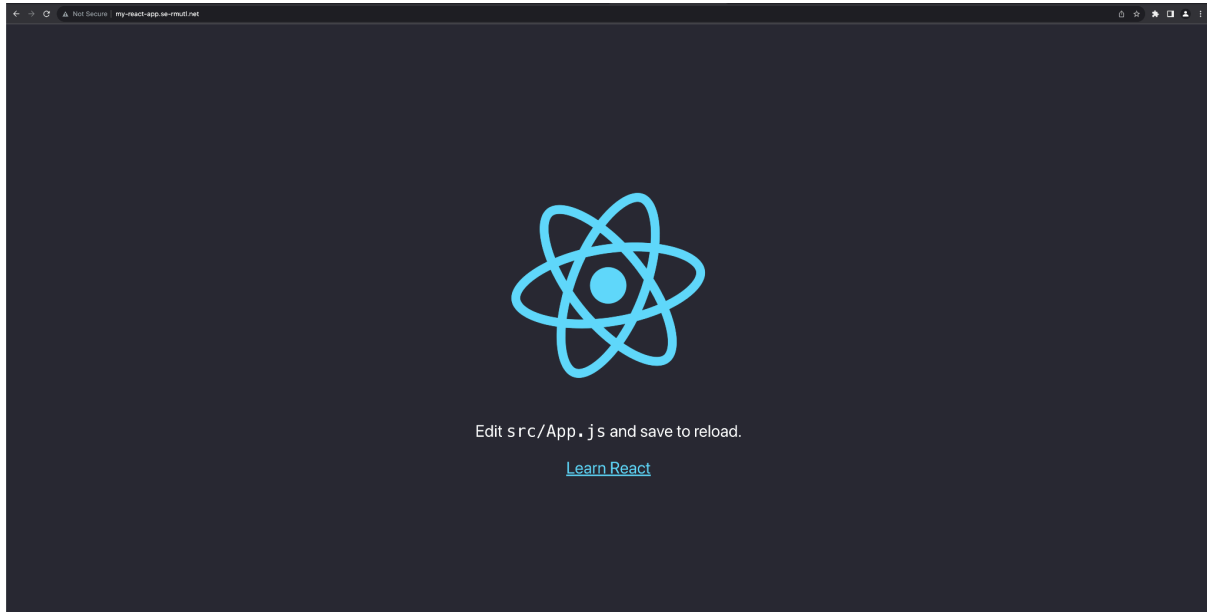
id	name	mode	๗	status	cpu	memory
0	my-react-app	fork	0	stopped	0%	0b



- คำสั่งรัน

```
devuser@server:/var/www/lab3/my-react-app$ pm2 start my-react-app
[PM2] Applying action restartProcessId on app [my-react-app](ids: [ 0 ])
[PM2] [my-react-app](0) ✓
[PM2] Process successfully started
```

id	name	mode	๗	status	cpu	memory
0	my-react-app	fork	0	online	0%	19.9mb



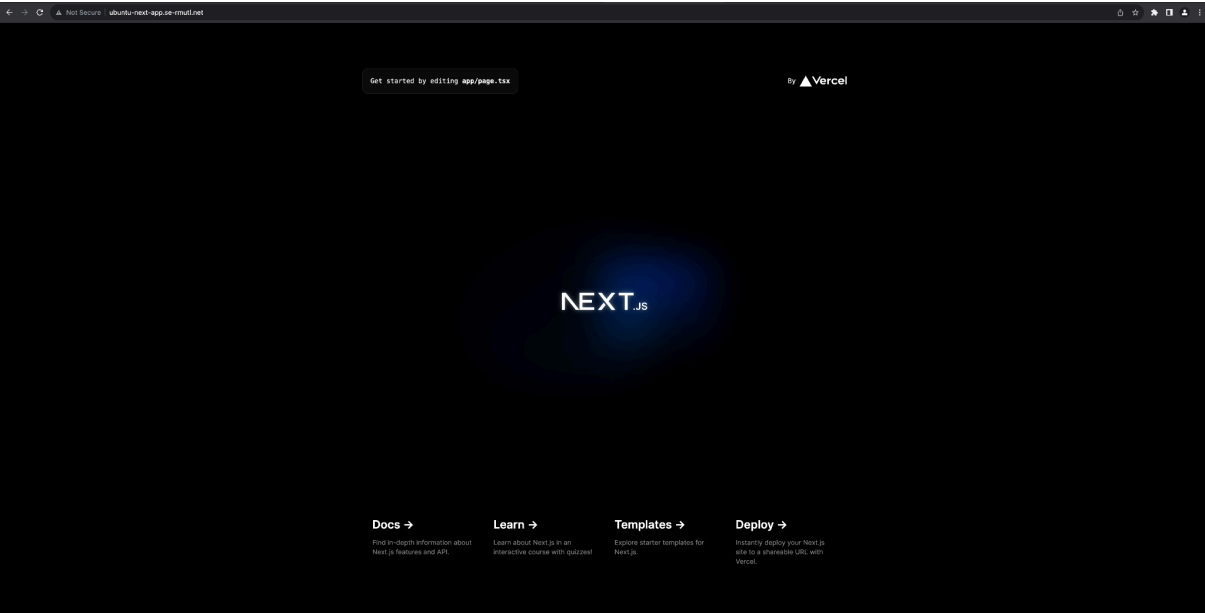
- ลองทำกับ NextJs

- ดอนรัน

```
devuser@server:/var/www/lab3/ubuntu-next-app$ pm2 start npm --name ubuntu-next-app -- start
[PM2] Starting /usr/bin/npm in fork_mode (1 instance)
[PM2] Done.
```

id	name	mode	๗	status	cpu	memory
0	my-react-app	fork	0	online	0%	58.6mb
1	ubuntu-next-app	fork	0	online	0%	3.5mb

```
devuser@server:/var/www/lab3/ubuntu-next-app$
```



- คำสั่งหยุดรัน

```
devuser@server:/var/www/lab3/ubuntu-next-app$ pm2 stop ubuntu-next-app
[PM2] Applying action stopProcessId on app [ubuntu-next-app](ids: [ 1 ])
[PM2] [ubuntu-next-app](1) ✓
```

id	name	mode	♾	status	cpu	memory
0	my-react-app	fork	0	online	0%	58.6mb
1	ubuntu-next-app	fork	0	stopped	0%	0b

```
devuser@server:/var/www/lab3/ubuntu-next-app$
```



- คำสั่ง Delete

```
devuser@server:/var/www/lab3/ubuntu-next-app$ pm2 delete my-react-app  
[PM2] Applying action deleteProcessId on app [my-react-app](ids: [ 0 ])  
[PM2] [my-react-app](0) ✓
```

id	name	mode	๗	status	cpu	memory
1	ubuntu-next-app	fork	0	stopped	0%	0b

```
devuser@server:/var/www/lab3/ubuntu-next-app$
```