

Lab 2

เข้าเป็น Root

```
devuser@server:~$ sudo -i
[sudo] password for devuser:
root@server:~#
```

สร้าง user ใหม่

```
root@server:~# adduser fiew
Adding user `fiew' ...
Adding new group `fiew' (1002) ...
Adding new user `fiew' (1002) with group `fiew' ...
Creating home directory `/home/fiew' ...
Copying files from `/etc/skel' ...
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for fiew
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@server:~#
```

ให้สิทธิ์การใช้ root

```
root@server:~# usermod -aG sudo fiew
root@server:~#
```

เปิด Firewall

```
root@server:~# ufw app list
Available applications:
  Apache
  Apache Full
  Apache Secure
  OpenSSH
root@server:~# ufw allow OpenSSH
Skipping adding existing rule
Skipping adding existing rule (v6)
root@server:~# ufw enable
Command may disrupt existing ssh connections. Proceed with operation (y|n)? y
Firewall is active and enabled on system startup
root@server:~# ufw status
Status: active
```

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

ลง Apache

```
root@server:~# sudo apt install apache2
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  apache2-bin apache2-data apache2-utils bzip2 libapr1 libaprutil1 libaprutil1-dbd-sqlite3 libaprutil1-ldap liblua5.3-0 mailcap
  mime-support ssl-cert
Suggested packages:
  apache2-doc apache2-suexec-pristine | apache2-suexec-custom www-browser bzip2-doc
The following NEW packages will be installed:
  apache2 apache2-bin apache2-data apache2-utils bzip2 libapr1 libaprutil1 libaprutil1-dbd-sqlite3 libaprutil1-ldap liblua5.3-0
  mailcap mime-support ssl-cert
0 upgraded, 13 newly installed, 0 to remove and 0 not upgraded.
Need to get 2,085 kB of archives.
After this operation, 7,827 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://ports.ubuntu.com/ubuntu-ports jammy-updates/main arm64 libapr1 arm64 1.7.0-8ubuntu0.22.04.1 [106 kB]
Get:2 http://ports.ubuntu.com/ubuntu-ports jammy-updates/main arm64 libaprutil1 arm64 1.6.1-5ubuntu4.22.04.2 [93.6 kB]
Get:3 http://ports.ubuntu.com/ubuntu-ports jammy-updates/main arm64 libaprutil1-dbd-sqlite3 arm64 1.6.1-5ubuntu4.22.04.2 [11.2 kB]
Get:4 http://ports.ubuntu.com/ubuntu-ports jammy-updates/main arm64 libaprutil1-ldap arm64 1.6.1-5ubuntu4.22.04.2 [9,048 B]
Get:5 http://ports.ubuntu.com/ubuntu-ports jammy/main arm64 liblua5.3-0 arm64 5.3.6-1build1 [135 kB]
Get:6 http://ports.ubuntu.com/ubuntu-ports jammy-updates/main arm64 apache2-bin arm64 2.4.52-1ubuntu4.7 [1,300 kB]
Get:7 http://ports.ubuntu.com/ubuntu-ports jammy-updates/main arm64 apache2-data all 2.4.52-1ubuntu4.7 [165 kB]
Get:8 http://ports.ubuntu.com/ubuntu-ports jammy-updates/main arm64 apache2-utils arm64 2.4.52-1ubuntu4.7 [87.5 kB]
Get:9 http://ports.ubuntu.com/ubuntu-ports jammy/main arm64 mailcap all 3.70+nmulubuntu1 [23.8 kB]
Get:10 http://ports.ubuntu.com/ubuntu-ports jammy/main arm64 mime-support all 3.66 [3,696 B]
Get:11 http://ports.ubuntu.com/ubuntu-ports jammy-updates/main arm64 apache2 arm64 2.4.52-1ubuntu4.7 [97.8 kB]
Get:12 http://ports.ubuntu.com/ubuntu-ports jammy/main arm64 bzip2 arm64 1.0.8-5build1 [34.6 kB]
Get:13 http://ports.ubuntu.com/ubuntu-ports jammy/main arm64 ssl-cert all 1.1.2 [17.4 kB]
Fetched 2,085 kB in 4s (589 kB/s)
Preconfiguring packages ...
Selecting previously unselected package libapr1:arm64.
(Reading database ... 77226 files and directories currently installed.)
Preparing to unpack .../00-libapr1_1.7.0-8ubuntu0.22.04.1_arm64.deb ...
Unpacking libapr1:arm64 (1.7.0-8ubuntu0.22.04.1) ...
Selecting previously unselected package libaprutil1:arm64.
Preparing to unpack .../01-libaprutil1_1.6.1-5ubuntu4.22.04.2_arm64.deb ...
Unpacking libaprutil1:arm64 (1.6.1-5ubuntu4.22.04.2) ...
Selecting previously unselected package libaprutil1-dbd-sqlite3:arm64.
Preparing to unpack .../02-libaprutil1-dbd-sqlite3_1.6.1-5ubuntu4.22.04.2_arm64.deb ...
Unpacking libaprutil1-dbd-sqlite3:arm64 (1.6.1-5ubuntu4.22.04.2) ...
Selecting previously unselected package libaprutil1-ldap:arm64.
```

```
root@server:~# sudo ufw app list
Available applications:
  Apache
  Apache Full
  Apache Secure
  OpenSSH
root@server:~# sudo ufw allow in "Apache"
Rule added
Rule added (v6)
root@server:~# sudo ufw status
Status: active
```

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

10.211.55.3



Apache2 Default Page



It works!

This is the default welcome page used to test the correct operation of the Apache2 server after installation on Ubuntu systems. It is based on the equivalent page on Debian, from which the Ubuntu Apache packaging is derived. If you can read this page, it means that the Apache HTTP server installed at this site is working properly. You should **replace this file** (located at `/var/www/html/index.html`) before continuing to operate your HTTP server.

If you are a normal user of this web site and don't know what this page is about, this probably means that the site is currently unavailable due to maintenance. If the problem persists, please contact the site's administrator.

Configuration Overview

Ubuntu's Apache2 default configuration is different from the upstream default configuration, and split into several files optimized for interaction with Ubuntu tools. The configuration system is **fully documented in `/usr/share/doc/apache2/README.Debian.gz`**. Refer to this for the full documentation. Documentation for the web server itself can be found by accessing the **manual** if the `apache2-doc` package was installed on this server.

The configuration layout for an Apache2 web server installation on Ubuntu systems is as follows:

```
/etc/apache2/
|-- apache2.conf
/   |-- ports.conf
|-- mods-enabled
/   |-- *.load
/   |-- *.conf
|-- conf-enabled
/   |-- *.conf
|-- sites-enabled
/   |-- *.conf
```

- `apache2.conf` is the main configuration file. It puts the pieces together by including all remaining configuration files when starting up the web server.
- `ports.conf` is always included from the main configuration file. It is used to determine the listening ports for incoming connections, and this file can be customized anytime.
- Configuration files in the `mods-enabled/`, `conf-enabled/` and `sites-enabled/` directories contain particular configuration snippets which manage modules, global configuration fragments, or virtual host configurations, respectively.

ลง MySQL

```
root@server:~# sudo apt install mysql-server
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  libbcgi-fast-perl libbcgi-pm-perl libclone-perl libencode-locale-perl libevent-pthreads-2.1-7 libfcgi-bin libfcgi-perl libfcgi0ld
  libhtml-parser-perl libhtml-tagset-perl libhtml-template-perl libhttp-date-perl libhttp-message-perl libio-html-perl
  liblwp-mediatypes-perl libmecab2 libprotobuf-lite23 libtimedate-perl liburi-perl mecab-ipadic mecab-ipadic-utf8 mecab-utils
  mysql-client-8.0 mysql-client-core-8.0 mysql-common mysql-server-8.0 mysql-server-core-8.0
Suggested packages:
  libdata-dump-perl libipc-sharedcache-perl libbusiness-isbn-perl libwww-perl mailx tinycsa
The following NEW packages will be installed:
  libbcgi-fast-perl libbcgi-pm-perl libclone-perl libencode-locale-perl libevent-pthreads-2.1-7 libfcgi-bin libfcgi-perl libfcgi0ld
  libhtml-parser-perl libhtml-tagset-perl libhtml-template-perl libhttp-date-perl libhttp-message-perl libio-html-perl
  liblwp-mediatypes-perl libmecab2 libprotobuf-lite23 libtimedate-perl liburi-perl mecab-ipadic mecab-ipadic-utf8 mecab-utils
  mysql-client-8.0 mysql-client-core-8.0 mysql-common mysql-server mysql-server-8.0 mysql-server-core-8.0
0 upgraded, 28 newly installed, 0 to remove and 0 not upgraded.
Need to get 28.9 MB of archives.
After this operation, 238 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://ports.ubuntu.com/ubuntu-ports jammy/main arm64 mysql-common all 5.8+1.0.8 [7,212 B]
Get:2 http://ports.ubuntu.com/ubuntu-ports jammy-updates/main arm64 mysql-client-core-8.0 arm64 8.0.35-0ubuntu0.22.04.1 [2,900 kB]
Get:3 http://ports.ubuntu.com/ubuntu-ports jammy-updates/main arm64 mysql-client-8.0 arm64 8.0.35-0ubuntu0.22.04.1 [22.7 kB]
Get:4 http://ports.ubuntu.com/ubuntu-ports jammy/main arm64 libevent-pthreads-2.1-7 arm64 2.1.12-stable-1build3 [7,588 B]
Get:5 http://ports.ubuntu.com/ubuntu-ports jammy/main arm64 libmecab2 arm64 0.996-14build9 [188 kB]
Get:6 http://ports.ubuntu.com/ubuntu-ports jammy-updates/main arm64 libprotobuf-lite23 arm64 3.12.4-1ubuntu7.22.04.1 [192 kB]
Get:7 http://ports.ubuntu.com/ubuntu-ports jammy-updates/main arm64 mysql-server-core-8.0 arm64 8.0.35-0ubuntu0.22.04.1 [16.9 MB]
Get:8 http://ports.ubuntu.com/ubuntu-ports jammy-updates/main arm64 mysql-server-8.0 arm64 8.0.35-0ubuntu0.22.04.1 [1,238 kB]
Get:9 http://ports.ubuntu.com/ubuntu-ports jammy/main arm64 libhtml-tagset-perl all 3.20-4 [12.5 kB]
```

ตั้งรหัสให้ MySQL

```
root@server:~# 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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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';
Query OK, 0 rows affected (0.00 sec)

mysql> exit
```

ตั้งค่า secure ให้ MySQL

```
root@server:~# sudo mysql_secure_installation
```

Securing the MySQL server deployment.

Enter password for user root:

done

```
root@server:~# sudo mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 17
Server version: 8.0.35-0ubuntu0.22.04.1 (Ubuntu)

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owners.

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

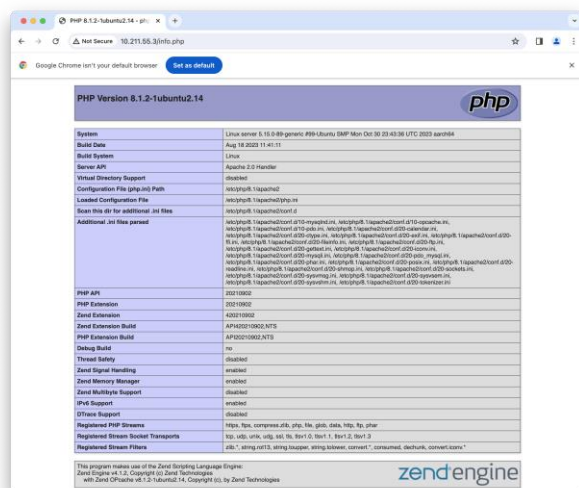
ลง PHP

```
root@server:~# apt install php libapache2-mod-php php-mysql
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  libapache2-mod-php8.1 php-common php8.1 php8.1-cli php8.1-common php8.1-mysql php8.1-opcache php8.1-readline
Suggested packages:
  php-pear
The following NEW packages will be installed:
  libapache2-mod-php libapache2-mod-php8.1 php php-common php-mysql php8.1 php8.1-cli php8.1-common php8.1-mysql php8.1-opcache
  php8.1-readline
0 upgraded, 11 newly installed, 0 to remove and 0 not upgraded.
Need to get 5,338 kB of archives.
After this operation, 22.4 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
```

```
root@server:~# php -v
PHP 8.1.2-1ubuntu2.14 (cli) (built: Aug 18 2023 11:41:11) (NTS)
Copyright (c) The PHP Group
Zend Engine v4.1.2, Copyright (c) Zend Technologies
with Zend OPcache v8.1.2-1ubuntu2.14, Copyright (c), by Zend Technologies
```

สร้างไฟล์ทดสอบ

```
root@server://var/www/html# sudo nano info.php
root@server://var/www/html# ls -l
total 16
-rw-r--r-- 1 root root 10671 Nov 29 04:04 index.html
-rw-r--r-- 1 root root 17 Nov 29 06:55 info.php
```



สร้างไฟล์ lab2

```
root@server: //var/www# mkdir lab2
```

เปลี่ยน owner lab2

```
devuser@server:~$ cd /var/www
devuser@server:/var/www$ sudo chown -R $USER:$USER /var/www/lab2
[sudo] password for devuser:
devuser@server:/var/www$ ls -l
total 8
drwxr-xr-x 2 root    root    4096 Nov 29 07:05 html
drwxr-xr-x 2 devuser devuser 4096 Nov 29 07:09 lab2
```

สร้างไฟล์ lab2.conf

```
devuser@server:/var/www$ sudo nano /etc/apache2/sites-available/lab2.conf
```

```
GNU nano 6.2 /etc/apache2/sites-available/lab2.conf *
<VirtualHost *:80>
    ServerName lab2
    ServerAlias www.lab2
    ServerAdmin webmaster@localhost
    DocumentRoot /var/www/lab2
    ErrorLog ${APACHE_LOG_DIR}/error.log
    CustomLog ${APACHE_LOG_DIR}/access.log combined
</VirtualHost>
```

Enable lab2

```
devuser@server:/var/www$ sudo a2ensite lab2
Enabling site lab2.
To activate the new configuration, you need to run:
    systemctl reload apache2
devuser@server:/var/www$ sudo systemctl reload apache2
```

Disable 000-default

```
devuser@server:/var/www$ sudo a2dissite 000-default
Site 000-default disabled.
To activate the new configuration, you need to run:
    systemctl reload apache2
devuser@server:/var/www$ sudo apache2ctl configtest
AH00558: apache2: Could not reliably determine the server's fully qualified domain name, please
edit the 'ServerName' directive globally to suppress this message
Syntax OK
devuser@server:/var/www$ sudo systemctl reload apache2
```

สร้างไฟล์ index.html

```
devuser@server:/var/www$ nano /var/www/lab2/index.html
```

```
GNU nano 6.2 /var/www/lab2/index.html
<html>
  <head>
    <title>lab2 website</title>
  </head>
  <body>
    <h1>Hello World! iam lertpisit :)</h1>

    <p>This is the landing page of <strong>lab2</strong>.</p>
  </body>
</html>
```

สร้างไฟล์ index.php

```
devuser@server:/var/www/lab2$ nano /var/www/lab2/index.php
```

```
GNU nano 6.2 /var/www/lab2/index.php
<html>
  <head>
    <title>lab2 website</title>
  </head>
  <body>
    <h1>Hello World! in php </h1>

    <p>This is the landing page of <strong>lab2 </strong>.</p>
  </body>
</html>
```

เพิ่มลำดับ Directory ของ index.php

```
devuser@server:/var/www/lab2$ sudo nano /etc/apache2/mods-enabled/dir.conf
```

```
GNU nano 6.2 /etc/apache2/mods-enabled/dir.conf
<IfModule mod_dir.c>
  DirectoryIndex index.php index.html index.cgi index.pl index.php index.xhtml index.htm
</IfModule>

# vim: syntax=apache ts=4 sw=4 sts=4 sr noet
```

เข้า mysql

```
lertpisit@server:~$ sudo mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 14
Server version: 8.0.35-0ubuntu0.22.04.1 (Ubuntu)

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owners.

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

mysql> 
```

สร้าง database

```
mysql> CREATE DATABASE test_database;
Query OK, 1 row affected (0.01 sec)
```

สร้าง user

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

ทำให้ user เข้าถึง database

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

เข้าไปยัง user ที่สร้าง


```

lertpisit@server:~$ mysql -u test_user -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 16
Server version: 8.0.35-0ubuntu0.22.04.1 (Ubuntu)

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owners.

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

```

ดู database

```

mysql> SHOW DATABASES;
+-----+
| Database |
+-----+
| information_schema |
| performance_schema |
| test_database |
+-----+
3 rows in set (0.01 sec)

```

สร้าง table to do list

```

mysql> CREATE TABLE test_database.todo_list(
-> item_id INT AUTO_INCREMENT,
-> content VARCHAR(255),
-> PRIMARY KEY(item_id)
-> );
Query OK, 0 rows affected (0.02 sec)

```

Insert เข้า table to do list

```

mysql> INSERT INTO test_database.todo_list (content) VALUES ("My first important item");
Query OK, 1 row affected (0.00 sec)

```

เลือก database และ table เพื่อดู

```
mysql> SELECT * FROM test_database.todo_list;
+-----+-----+
| item_id | content |
+-----+-----+
|      1 | My first important item |
+-----+-----+
1 row in set (0.00 sec)
```

ออกและสร้างไฟล์.php

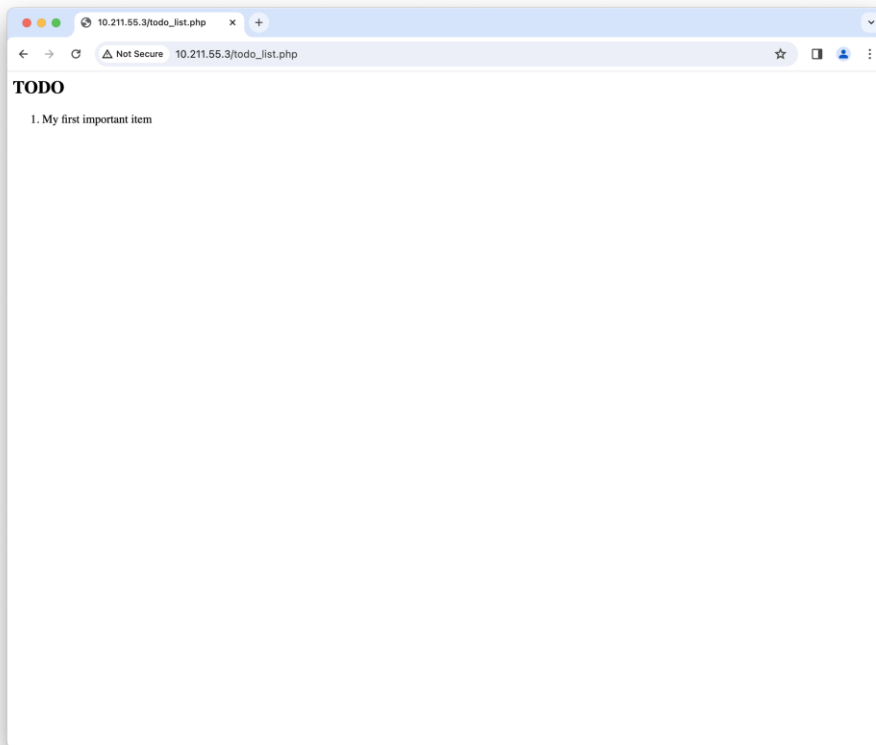
```
lertpisit@server:~$ sudo nano /var/www/lab2/todo_list.php
```

สร้างหน้าเว็บ

```
GNU nano 6.2 /var/www/lab2/todo_list.php *
<?php
$user = "test_user";
$password = "P@ssw0rd";
$database = "test_database";
$table = "todo_list";

try {
    $db = new PDO("mysql:host=localhost;dbname=$database", $user, $password);
    echo "<h2>TODO</h2><ol>";
    foreach($db->query("SELECT content FROM $table") as $row) {
        echo "<li>" . $row['content'] . "</li>";
    }
    echo "</ol>";
} catch (PDOException $e) {
    print "Error!: " . $e->getMessage() . "<br/>";
    die();
}
```

ลองเข้าไปหน้าเว็บ



ลง git

```
devuser@ubuntuuserver:/var/www/lab2$ sudo apt install git
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Suggested packages:
  git-daemon-run | git-daemon-sysvinit git-doc git-email git-gui gitk gitweb git-cvs
  git-mediawiki git-svn
The following packages will be upgraded:
  git
1 upgraded, 0 newly installed, 0 to remove and 37 not upgraded.
Need to get 3,166 kB of archives.
After this operation, 0 B of additional disk space will be used.
Get:1 http://th.archive.ubuntu.com/ubuntu jammy-updates/main amd64 git amd64 1:2.34.1-1ubuntu1
.10 [3,166 kB]
```

```
devuser@ubuntuuserver:/var/www/lab2$ git --version
git version 2.34.1
```

ใส่ username และ email

```
devuser@ubuntuuserver:/var/www/lab2$ git config --global user.name "Missez"
devuser@ubuntuuserver:/var/www/lab2$ git config --global user.email "lertpisi@gmail.com"
devuser@ubuntuuserver:/var/www/lab2$ git config --list
user.name=Missez
user.email=lertpisi@gmail.com
```

Virtual Hosts

สร้าง directories lab2-1_001 และ 002

```
devuser@ubuntu-server:/var/www/lab2$ sudo mkdir -p /var/www/lab2-1_001/public_html
```

```
devuser@ubuntu-server:/var/www/lab2$ sudo mkdir -p /var/www/lab2-2_001/public_html
```

เปลี่ยน สิทธิ ของ directories

```
devuser@ubuntu-server:/var/www/lab2$ sudo chown -R $USER:$USER /var/www/lab2-2_001/public_html
devuser@ubuntu-server:/var/www/lab2$ sudo chown -R $USER:$USER /var/www/lab2-1_001/public_html
```

ให้ สิทธิ ของ directories

```
devuser@ubuntu-server:/var/www/lab2$ sudo chmod -R 755 /var/www
```

สร้าง index.html ทั้งสอง folder

```
devuser@ubuntu-server:/var/www/lab2-1_001/public_html$ nano index.html
```

```
GNU nano 6.2 index.html
<html>
  <head>
    <title>Welcome to lab2-1_001!</title>
  </head>
  <body>
    <h1>Success! The lab2-1_001 virtual host is working!</h1>
  </body>
</html>
```

```
devuser@ubuntu-server:/var/www/lab2-2_001/public_html$ nano index.html
```

```
GNU nano 6.2 index.html
<html>
  <head>
    <title>Welcome to lab2-2_001!</title>
  </head>
  <body>
    <h1>Success! The lab2-2_001 virtual host is working!</h1>
  </body>
</html>
```

Copy 000-default.conf ไป /etc/apache2/sites-available และ เปลี่ยนชื่อเป็น lab2-1_001.conf

```
devuser@ubuntu-server: /var/www$ sudo cp /etc/apache2/sites-available/000-default.conf /etc/apache2/sites-available/lab2-1_001.conf
```

เข้าไปแก้ไข lab2-1_001.conf

```
devuser@ubuntu-server: /var/www$ sudo nano /etc/apache2/sites-available/lab2-1_001.conf
```

```
GNU nano 6.2 /etc/apache2/sites-available/lab2-1_001.conf *
<VirtualHost *:80>
    # The ServerName directive sets the request scheme, hostname and port that
    # the server uses to identify itself. This is used when creating
    # redirection URLs. In the context of virtual hosts, the ServerName
    # specifies what hostname must appear in the request's Host: header to
    # match this virtual host. For the default virtual host (this file) this
    # value is not decisive as it is used as a last resort host regardless.
    # However, you must set it for any further virtual host explicitly.
    #ServerName www.example.com

    ServerAdmin admin@lab2-1_001
    ServerName lab2-1_001
    ServerAlias www.lab2-1_001
    DocumentRoot /var/www/lab2-1_001/public_html
```

Copy lab2-1_001.conf และ เปลี่ยนชื่อ lab2-2_001.conf

```
devuser@ubuntu-server: /var/www$ sudo cp /etc/apache2/sites-available/lab2-1_001.conf /etc/apache2/sites-available/lab2-2_001.conf
```

เข้าไปแก้ไข lab2-2_001.conf

```
devuser@ubuntu-server: /var/www$ sudo nano /etc/apache2/sites-available/lab2-2_001.conf
```

```
GNU nano 6.2 /etc/apache2/sites-available/lab2-2_001.conf *
<VirtualHost *:80>
    # The ServerName directive sets the request scheme, hostname and port that
    # the server uses to identify itself. This is used when creating
    # redirection URLs. In the context of virtual hosts, the ServerName
    # specifies what hostname must appear in the request's Host: header to
    # match this virtual host. For the default virtual host (this file) this
    # value is not decisive as it is used as a last resort host regardless.
    # However, you must set it for any further virtual host explicitly.
    #ServerName www.example.com

    ServerAdmin admin@lab2-2_001
    ServerName lab2-2_001
    ServerAlias www.lab2-2_001
    DocumentRoot /var/www/lab2-2_001/public_html
```

Enable ไฟล์ทั้งสอง

```
devuser@ubuntu-server: /var/www$ sudo a2ensite lab2-1_001.conf
Enabling site lab2-1_001.
To activate the new configuration, you need to run:
    systemctl reload apache2
devuser@ubuntu-server: /var/www$ sudo a2ensite lab2-2_001.conf
Enabling site lab2-2_001.
To activate the new configuration, you need to run:
    systemctl reload apache2
```

Disable ไฟล์ default

```
devuser@ubuntu-server: /var/www$ sudo a2dissite 000-default.conf
Site 000-default already disabled
```

Check configuration errors

```
devuser@ubuntu-server: /var/www$ sudo apache2ctl configtest
AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using
127.0.1.1. Set the 'ServerName' directive globally to suppress this message
Syntax OK
```

Restart apache2

```
devuser@ubuntu-server: /var/www$ sudo systemctl restart apache2
```

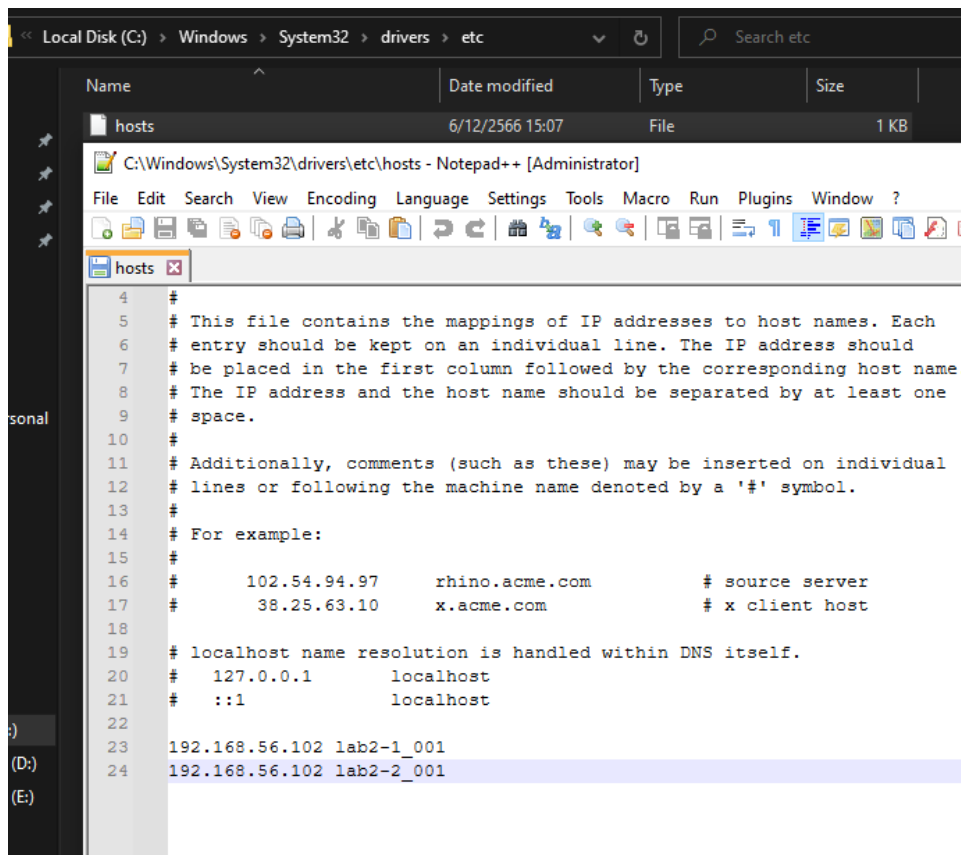
ดู status

```
devuser@ubuntu-server: /var/www$ sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)
   Active: active (running) since Wed 2023-12-06 08:04:26 UTC; 1min 4s ago
     Docs: https://httpd.apache.org/docs/2.4/
   Process: 14273 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
```

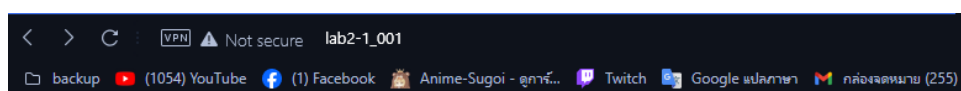
แก้ไขไฟล์ hosts ใน etc เพิ่ม

192.168.56.102 lab2-1_001

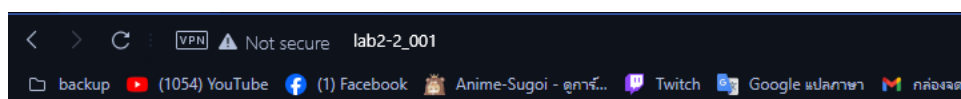
192.168.56.102 lab2-2_001



ทดสอบโดยการเข้าด้วย domain



Success! The lab2-1_001 virtual host is working!



Success! The lab2-2_001 virtual host is working!