Lab2

1. เข้าระบบด้วย User root

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

2. ใช้คำสั่ง adduser เพื่อทำอีก user แล้วกรอกรหัสผ่านกับ ข้อมูลส่วนตัวบางส่วน แล้ว กด Y เพื่อตกลง

```
root@server:~# adduser chawanrak
Adding user `chawanrak' ...
Adding new group `chawanrak' (1001) ...
Adding new user `chawanrak' (1001) with group `chawanrak' ...
Creating home directory `/home/chawanrak' ...
Copying files from `/etc/skel' ...
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for chawanrak
Enter the new value, or press ENTER for the default
        Full Name []: Chawanrak
        Room Number []:
        Work Phone []:
        Home Phone []:
        Other []:
Is the information correct? [Y/n] y
root@server:~#
```

3. ตั้ง userใหม่ให้เป็น root โดยคำสั่ง usermod

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

4. เข้า userใหม่ โดยใช้คำสั่ง ssh แล้ว พิมพ์ Yes เพื่อตกลง และ กรอกรหัสผ่านให้ถูกต้อง

```
root@server:~# ssh chawanrak@192.168.56.103
The authenticity of host '192.168.56.103 (192.168.56.103)' can't be established.
ED25519 key fingerprint is SHA256:qpvoHU7JdbKnjmItFHwAU2D+uGe61W4oUEel/2/FLNY.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? y
Please type 'yes', 'no' or the fingerprint: yes
Warning: Permanently added '192.168.56.103' (ED25519) to the list of known hosts.
chawanrak@192.168.56.103's password:
Welcome to Ubuntu 22.04.3 LTS (GNU/Linux 5.15.0-89-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

  System information as of Wed Dec  6 05:36:50 AM UTC 2023

  System load:  0.0                Processes:               121
  Usage of /:   11.6% of 58.75GB   Users logged in:         1
  Memory usage: 8%                 IPv4 address for enp0s3: 10.0.2.15
  Swap usage:   0%                 IPv4 address for enp0s8: 192.168.56.103


Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status



The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.
```

5. พิมพ์ sudo apt update แล้วใส่ รหัส

```
chawanrak@server:~$ sudo apt update
[sudo] password for chawanrak:
Hit:1 http://th.archive.ubuntu.com/ubuntu jammy InRelease
Hit:2 http://th.archive.ubuntu.com/ubuntu jammy-updates InRelease
Hit:3 http://th.archive.ubuntu.com/ubuntu jammy-backports InRelease
Hit:4 http://th.archive.ubuntu.com/ubuntu jammy-security InRelease
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
All packages are up to date.
```

6. พิมพ์ sudo apt upgrade แล้วใส่ รหัส

```
chawanrak@server:~$ sudo apt upgrade
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Calculating upgrade... Done
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
```

7. sudo ufw app list

```
devuser@ubuntuserver1:~$ sudo ufw app list
Available applications:
  OpenSSH
```

8. พิมพ์คำสั่ง sudo ufw allow OpenSSH

```
chawanrak@server:~$ sudo ufw allow OpenSSH
Rules updated
Rules updated (v6)
```

9. พิมพ์คำสั่ง sudo ufw enable [y]

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

ขั้นตอนที่ 1 – การติดตั้ง Apache

1. ติดตั้ง Apache

sudo apt install apache2

```
chawanrak@server:~$ sudo apt install apache2
```

2. พิมพ์คำสั่ง sudo ufw app list

```
chawanrak@server:~$ sudo ufw app list
Available applications:
  Apache
  Apache Full
  Apache Secure
  OpenSSH
```

3. พิมพ์คำสั่ง sudo ufw allow in ”Apache”

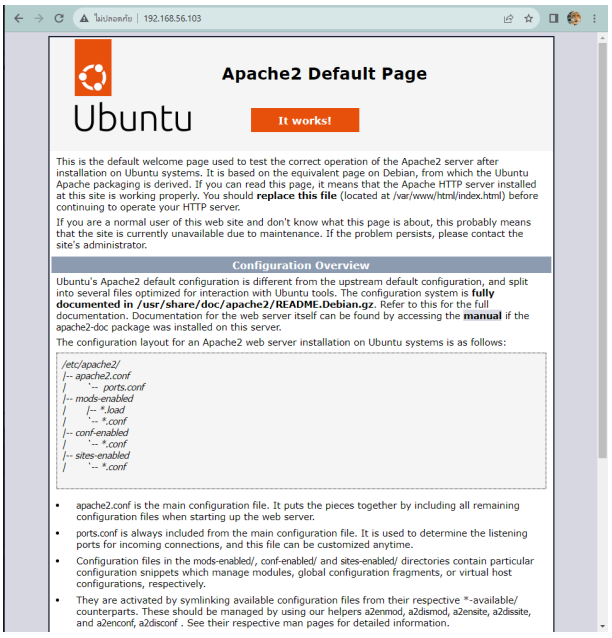
```
chawanrak@server:~$ sudo ufw allow in "Apache"
Rules updated
Rules updated (v6)
```

4. พิมพ์คำสั่ง sudo ufw status

```
chawanrak@server:~$ sudo ufw status
Status: active

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

5. สามารถตรวจสอบได้ว่า Apache ทำงานหรือไม่โดยการพิมพ์ IP ของเครื่องที่ใช้หลังจากเปิด ใช้งานแล้ว



ขั้นตอนที่ 2 – การติดตั้ง MySQL

1. ติดตั้ง MySQL ด้วยคำสั่ง sudo apt install mysql-server

```
chawanrak@server:~$ sudo apt install mysql-server
```

2. พิมพ์คำสั่ง sudo mysql

```
chawanrak@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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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>
```

3. เปลี่ยนรหัสด้วยคำสั่ง ALTER USER 'root'@'localhost' IDENTIFIED WITH mysql_native_password BY 'password';

```
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
chawanrak@server:~$
```

4. พิมพ์คำสั่ง sudo mysql_secure_installation

กด y

```
chawanrak@server:~$ sudo mysql_secure_installation

Securing the MySQL server deployment.

Enter password for user root:

VALIDATE PASSWORD COMPONENT can be used to test passwords
and improve security. It checks the strength of password
and allows the users to set only those passwords which are
secure enough. Would you like to setup VALIDATE PASSWORD component?

Press y|Y for Yes, any other key for No: y
```

กด 1

```
There are three levels of password validation policy:

LOW    Length >= 8
MEDIUM Length >= 8, numeric, mixed case, and special characters
STRONG Length >= 8, numeric, mixed case, special characters and dictionary
le

Please enter 0 = LOW, 1 = MEDIUM and 2 = STRONG: 1
Using existing password for root.
```

กด Enter เพื่อ Skip

```
 Estimated strength of the password: 100
 Change the password for root ? ((Press y|Y for Yes, any other key for No) :
```

กด y

```
Remove anonymous users? (Press y|Y for Yes, any other key for No) : y
Success.


Normally, root should only be allowed to connect from
'localhost'. This ensures that someone cannot guess at
the root password from the network.

Disallow root login remotely? (Press y|Y for Yes, any other key for No) : y
Success.

By default, MySQL comes with a database named 'test' that
anyone can access. This is also intended only for testing,
and should be removed before moving into a production
environment.


Remove test database and access to it? (Press y|Y for Yes, any other key for No) : y
 - Dropping test database...
Success.

 - Removing privileges on test database...
Success.

Reloading the privilege tables will ensure that all changes
made so far will take effect immediately.

Reload privilege tables now? (Press y|Y for Yes, any other key for No) : y
Success.

All done!
```

5. พิมพ์คำสั่ง sudo mysql -u root -p เพื่อทดสอบ

```
chawanrak@server:~$ sudo mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 11
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> exit
Bye
```

ขั้นตอนที่ 3 – การติดตั้ง PHP

1. ติดตั้ง PHP ด้วยคำสั่ง sudo apt install php libapache2-mod-php php-mysql

```
chawanrak@server:~$ sudo apt install php libapache2-mod-php php-mysql
```

2. รันคำสั่งต่อไปนี้เพื่อยืนยันเวอร์ชัน php -v

```
chawanrak@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
chawanrak@server:~$
```

3. พิมพ์คำสั่ง sudo mkdir /var/www/your_domain

```
devuser@ubuntuserver1:~$ cd /var/www
devuser@ubuntuserver1:/var/www$ sudo mkdir lab2
```

4. พิมพ์คำสั่ง sudo chown -R $USER:$USER /var/www/your_domain

```
devuser@ubuntuserver1:/var/www$ sudo chown -R $USER:$USER /var/www/lab2
```

5. พิมพ์คำสั่ง sudo nano /etc/apache2/sites-available/your_domain.conf

```
devuser@ubuntuserver1:/var/www$ sudo nano /etc/apache2/sites-available/lab2.conf
```

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

<VirtualHost *:80>
ServerName lab2
ServerAlias www.lab2.com
ServerAdmin webmaster@localhost
DocumentRoot /var/www/lab2
ErrorLog ${APACHE_LOG_DIR}/error.log
CustomLog ${APACHE_LOG_DIR}/access.log combined
</VirtualHost>

6. พิมพ์คำสั่ง sudo a2ensite your_domain

```
devuser@ubuntuserver1:/var/www$ sudo a2ensite lab2
Enabling site lab2.
To activate the new configuration, you need to run:
  systemctl reload apache2
```

7. พิมพ์คำสั่ง sudo a2dissite 000-default

```
devuser@ubuntuserver1:/var/www$ sudo a2dissite 000-default
Site 000-default disabled.
To activate the new configuration, you need to run:
  systemctl reload apache2
```

8. พิมพ์คำสั่ง sudo apache2ctl configtest

```
devuser@ubuntuserver1:/var/www$ sudo apache2ctl configtest
AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using 127.0.1.1. Se
t the 'ServerName' directive globally to suppress this message
Syntax OK
```

9. พิมพ์คำสั่ง sudo systemctl reload apache2

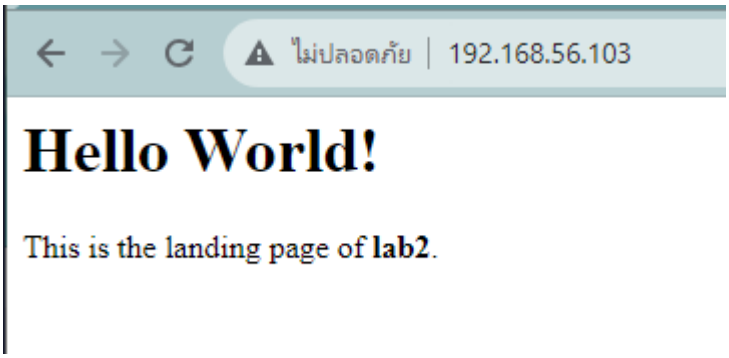
```
chawanrak@server:~$ sudo systemctl reload apache2
```

10. พิมพ์คำสั่ง nano /var/www/your_domain/index.html

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

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

http://server_domain_or_IP



11. พิมพ์คำสั่ง sudo nano /etc/apache2/mods-enabled/dir.conf

```
<IfModule mod_dir.c>
        DirectoryIndex index.php index.html index.cgi index.pl index.xhtml index.htm
</IfModule>
```

12. พิมพ์คำสั่ง sudo systemctl reload apache2

```
chawanrak@server:~$ sudo systemctl reload apache2
```

ขั้นตอนที่ 4 – ทดสอบการประมวลผล PHP

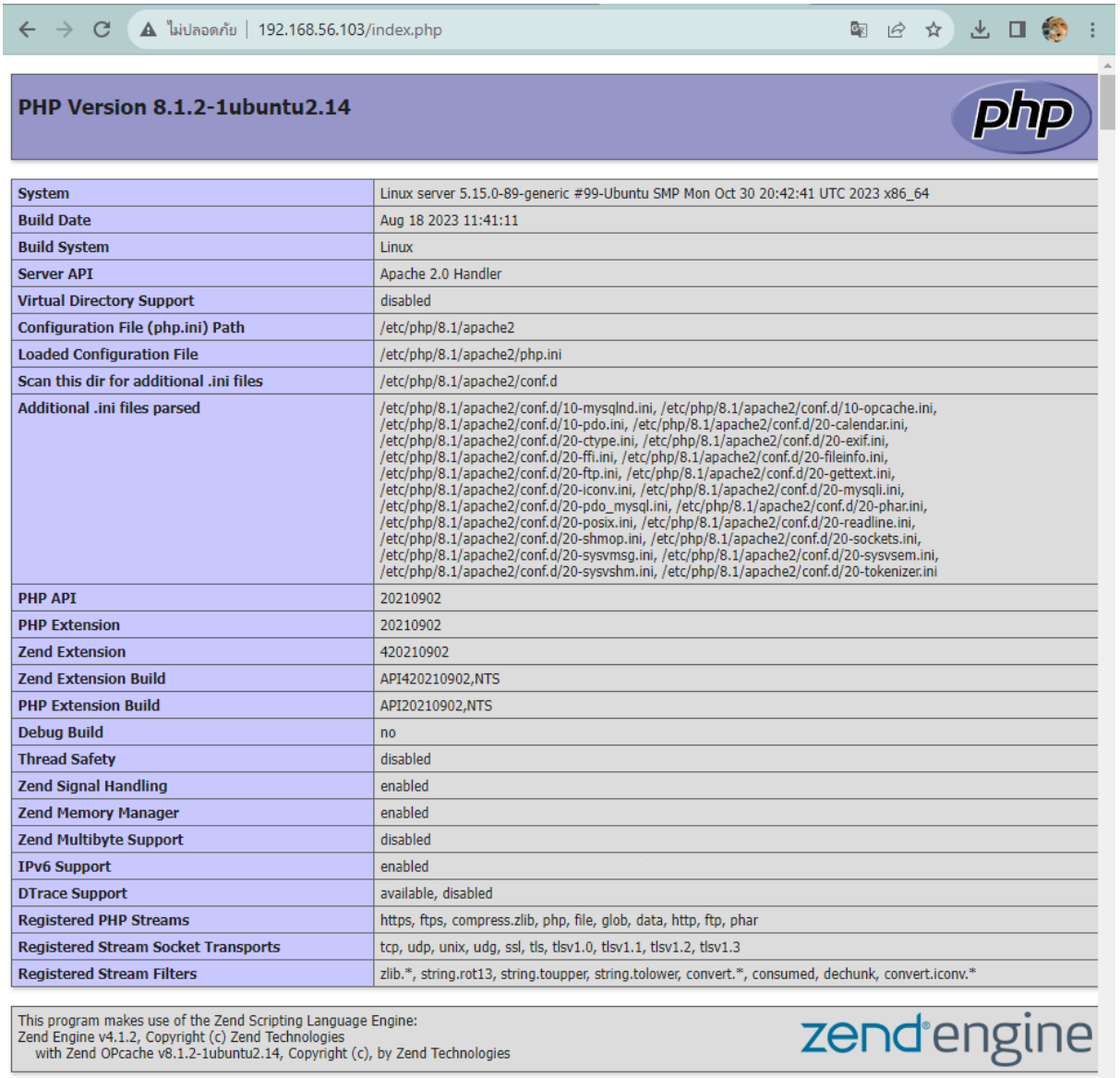
1. พิมพ์คำสั่ง nano /var/www/your_domain/info.php

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

2. <?php
phpinfo();

```
  GNU nano 6.2
<?php
phpinfo();
```

3. http://server_domain_or_IP/info.php



ไม่ปลอดภัย | 192.168.56.103/index.php

PHP Version 8.1.2-1ubuntu2.14

System	Linux server 5.15.0-89-generic #99-Ubuntu SMP Mon Oct 30 20:42:41 UTC 2023 x86_64
Build Date	Aug 18 2023 11:41:11
Build System	Linux
Server API	Apache 2.0 Handler
Virtual Directory Support	disabled
Configuration File (php.ini) Path	/etc/php/8.1/apache2
Loaded Configuration File	/etc/php/8.1/apache2/php.ini
Scan this dir for additional .ini files	/etc/php/8.1/apache2/conf.d
Additional .ini files parsed	/etc/php/8.1/apache2/conf.d/10-mysqlnd.ini, /etc/php/8.1/apache2/conf.d/10-opcache.ini, /etc/php/8.1/apache2/conf.d/10-pdo.ini, /etc/php/8.1/apache2/conf.d/20-calendar.ini, /etc/php/8.1/apache2/conf.d/20-ctype.ini, /etc/php/8.1/apache2/conf.d/20-exif.ini, /etc/php/8.1/apache2/conf.d/20-ffi.ini, /etc/php/8.1/apache2/conf.d/20-fileinfo.ini, /etc/php/8.1/apache2/conf.d/20-ftp.ini, /etc/php/8.1/apache2/conf.d/20-gettext.ini, /etc/php/8.1/apache2/conf.d/20-iconv.ini, /etc/php/8.1/apache2/conf.d/20-mysqli.ini, /etc/php/8.1/apache2/conf.d/20-pdo_mysql.ini, /etc/php/8.1/apache2/conf.d/20-phar.ini, /etc/php/8.1/apache2/conf.d/20-posix.ini, /etc/php/8.1/apache2/conf.d/20-readline.ini, /etc/php/8.1/apache2/conf.d/20-shmop.ini, /etc/php/8.1/apache2/conf.d/20-sockets.ini, /etc/php/8.1/apache2/conf.d/20-sysvmsg.ini, /etc/php/8.1/apache2/conf.d/20-sysvsem.ini, /etc/php/8.1/apache2/conf.d/20-sysvshm.ini, /etc/php/8.1/apache2/conf.d/20-tokenizer.ini
PHP API	20210902
PHP Extension	20210902
Zend Extension	420210902
Zend Extension Build	API420210902,NTS
PHP Extension Build	API20210902,NTS
Debug Build	no
Thread Safety	disabled
Zend Signal Handling	enabled
Zend Memory Manager	enabled
Zend Multibyte Support	disabled
IPv6 Support	enabled
DTrace Support	available, disabled
Registered PHP Streams	https, ftps, compress.zlib, php, file, glob, data, http, ftp, phar
Registered Stream Socket Transports	tcp, udp, unix, udg, ssl, tls, tlsv1.0, tlsv1.1, tlsv1.2, tlsv1.3
Registered Stream Filters	zlib.*, string.rot13, string.toupper, string.tolower, convert.*, consumed, dechunk, convert.iconv.*

This program makes use of the Zend Scripting Language Engine:
Zend Engine v4.1.2, Copyright (c) Zend Technologies
with Zend OPcache v8.1.2-1ubuntu2.14, Copyright (c), by Zend Technologies

ขั้นตอนที่ 5 – ทดสอบการเชื่อมต่อฐานข้อมูลจาก PHP

1. พิมพ์คำสั่ง sudo mysql -u root -p

```
chawanrak@server:~$ sudo mysql -u root -p
```

2. พิมพ์คำสั่ง CREATE DATABASE example_database;

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

3. พิมพ์คำสั่ง CREATE USER 'example_user'@'%' IDENTIFIED BY 'password';

```
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 'password';

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

4. พิมพ์คำสั่ง GRANT ALL ON example_database.* TO 'example_user'@'%';

```
mysql> GRANT ALL ON lab2_database.* TO 'fang'@'%';
Query OK, 0 rows affected (0.01 sec)
```

FLUSH PRIVILEGES;

```
mysql> FLUSH PRIVILEGES;
Query OK, 0 rows affected (0.00 sec)
```

5. พิมพ์คำสั่ง mysql -u example_user -p

```
chawanrak@server:~$ mysql -u fang -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>
```

6. SHOW DATABASES;

```
mysql> SHOW DATABASES;
+--------------------+
| Database           |
+--------------------+
| example_database   |
| information_schema |
| performance_schema |
+--------------------+
3 rows in set (0.00 sec)
```

7. จากนั้นสร้างตารางทดสอบชื่อtodo_list จากคอนโซล MySQL ให้รันคำสั่ง

```
mysql> CREATE TABLE example_database.todo_list (
    -> item_id INT AUTO_INCREMENT,
    -> content VARCHAR(255),
    -> PRIMARY KEY(item_id)
    -> );
Query OK, 0 rows affected (0.05 sec)
```

8. แอดข้อมูลเข้าไปในตาราง

```
mysql> INSERT INTO example_database.todo_list (content) VALUES ("My first important item");
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO example_database.todo_list (content) VALUES ("My second important item");
Query OK, 1 row affected (0.01 sec)

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

mysql> INSERT INTO example_database.todo_list (content) VALUES ("and this one more thing");
Query OK, 1 row affected (0.00 sec)
```

9. โชว์ตาราง

```
mysql> SELECT * FROM example_database.todo_list;
+---------+--------------------------+
| item_id | content                  |
+---------+--------------------------+
|       1 | My first important item  |
|       2 | My second important item |
|       3 | My third important item  |
|       4 | and this one more thing  |
+---------+--------------------------+
4 rows in set (0.00 sec)
```

10. สร้างสคริปต์ PHP ที่จะเชื่อมต่อกับ MySQL

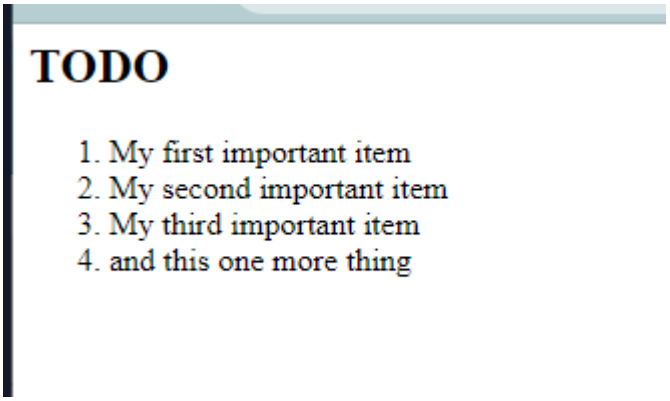
nano /var/www/your_domain/todo_list.php

```
devuser@ubuntuserver1:/var/www/lab2$ nano /var/www/lab2/todo_list.php
```

```php
<?php
$user = "example_user";
$password = "P@ssw0rd@2023";
$database = "example_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();
}
```

ผลลัพธ์



ติดตั้ง Git บน Ubuntu

1. sudo apt update เพื่อให้อยู่ในเวอร์ชั่นล่าสุด

```
chawanrak@server:~$ sudo apt update
[sudo] password for chawanrak:
Hit:1 http://th.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://th.archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Hit:3 http://th.archive.ubuntu.com/ubuntu jammy-backports InRelease
Get:4 http://th.archive.ubuntu.com/ubuntu 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
All packages are up to date.
```

2. ติดตั้ง Git [sudo apt install git]

```
chawanrak@server:~$ sudo apt install git
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
git is already the newest version (1:2.34.1-1ubuntu1.10).
git set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
```

3. ตรวจสอบการติดตั้งและเวอร์ชัน

```
chawanrak@server:~$ git --version
git version 2.34.1
```

4. ป้อนข้อมูลต่อไปนี้และแทนที่your_nameด้วยชื่อของคุณ และแทนที่ email@address.comด้วยที่อยู่อีเมลของคุณ

- git config --global user.name "your_name"
- git config --global user.email "email@address.com"

```
chawanrak@server:~$ git config --global user.name "Fang14298"
chawanrak@server:~$ git config --global user.email "fang001fang001@gmail.com"
```

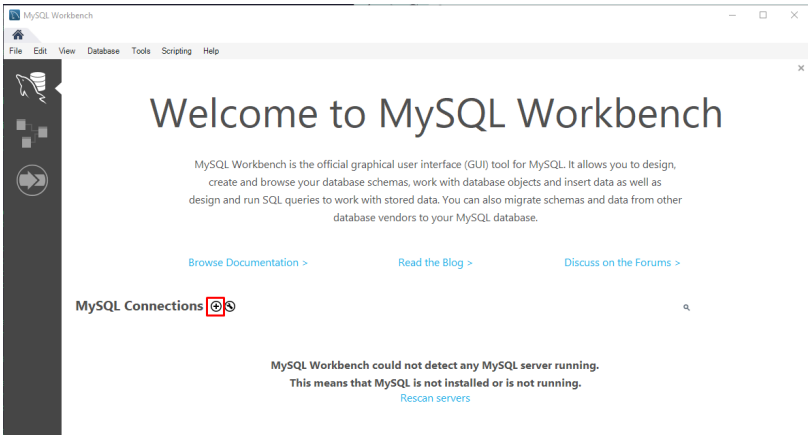
5. ตรวจสอบการเปลี่ยนแปลง

git config --list

```
chawanrak@server:~$ git config --list
user.name=Fang14298
user.email=fang001fang001@gmail.com
```

Connect MySQL Workbench to MySQL Server

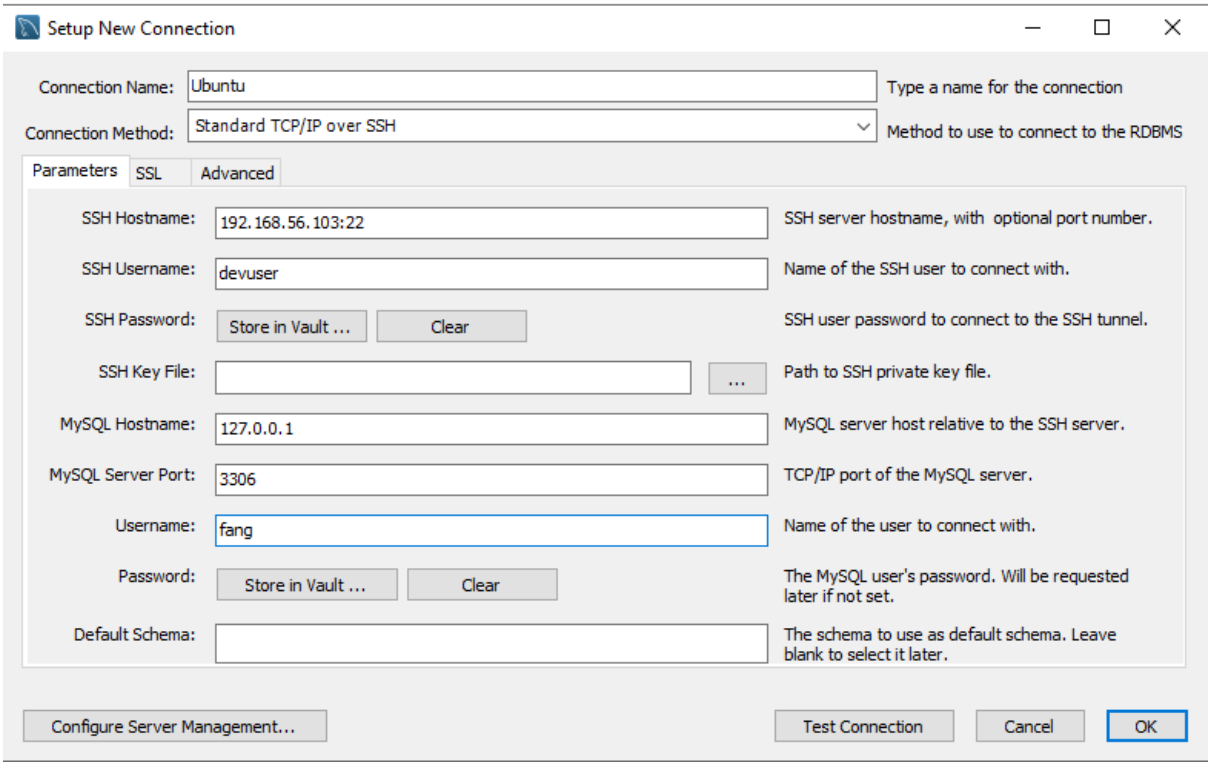
1.



2.

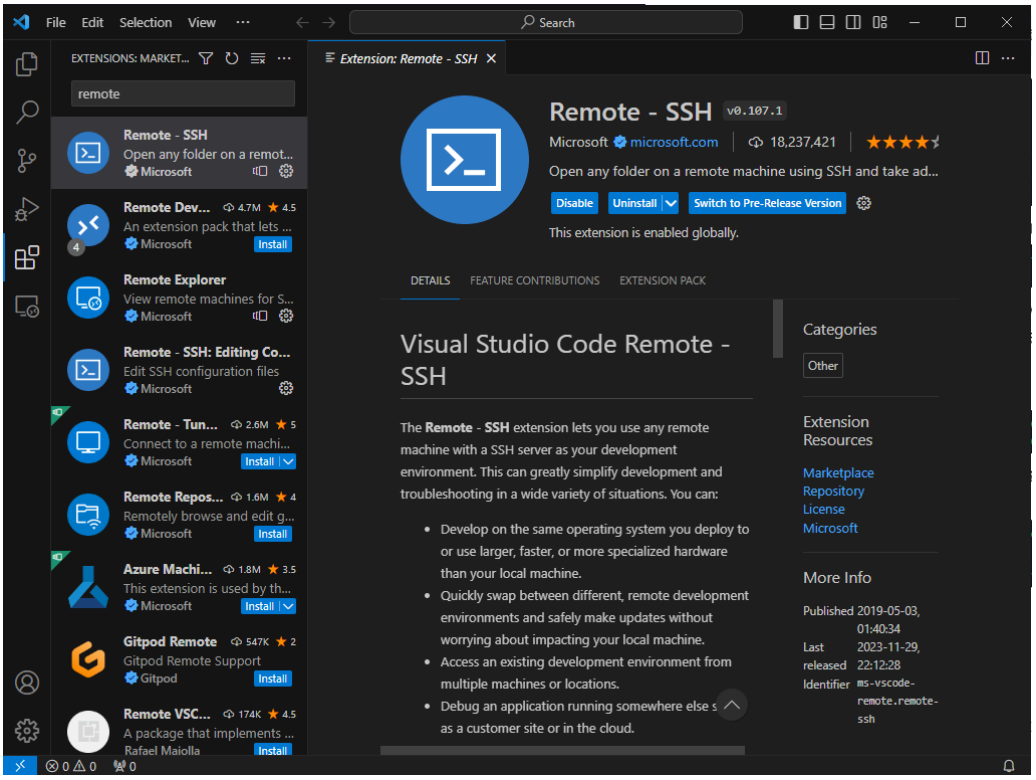
- ต้องใช้ User ที่อยู่บน Ubuntu Server
  ใช้ User: devuser
  Login ผ่าน ทาง SSH port 22

- ต้องใช้ User ที่อยู่บน MySql Server
  โดยปกติจะใช้ port 3306
  ใช้ User: example_user

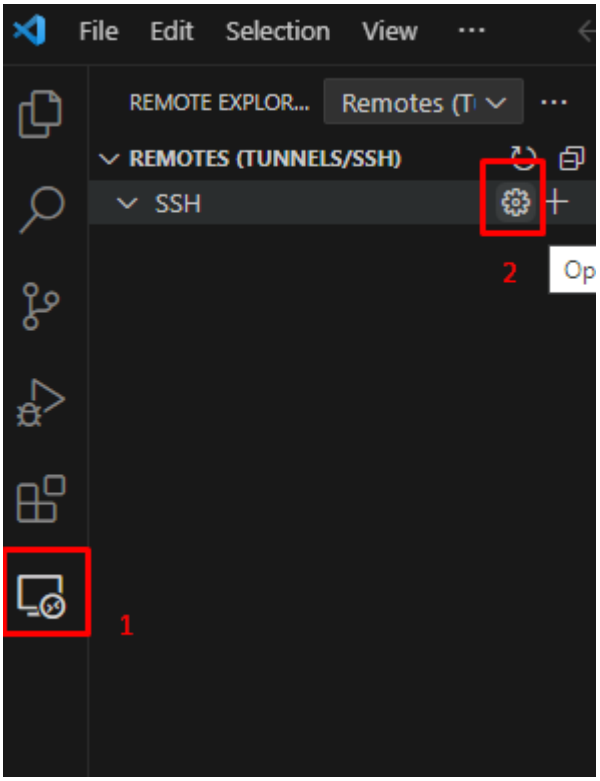


VS Code

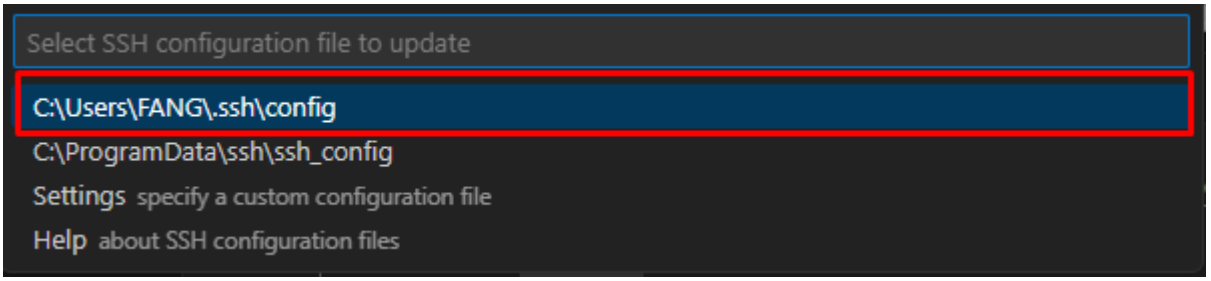
1. เปิด VScode และติดตั้ง Remote - ssh



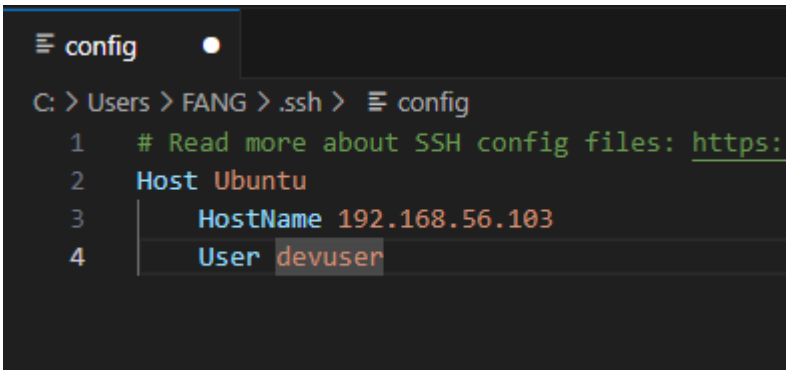
2. ติดตั้งเสร็จแล้ว ก็ทำตามขั้นตอน



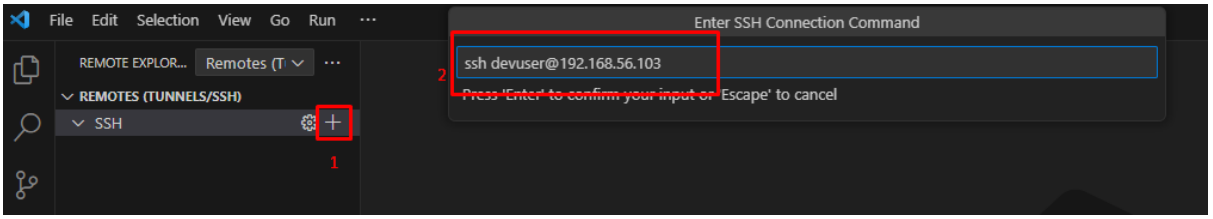
3. เลือกตามรูป

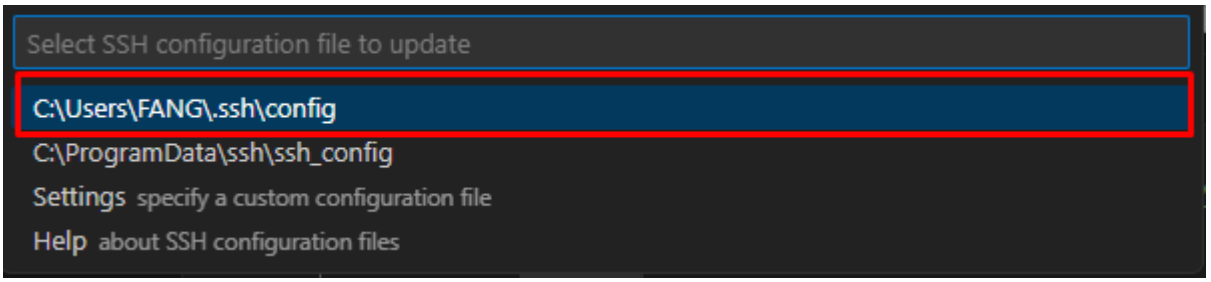


4. แก้ไขตามรูปแล้วกด Save

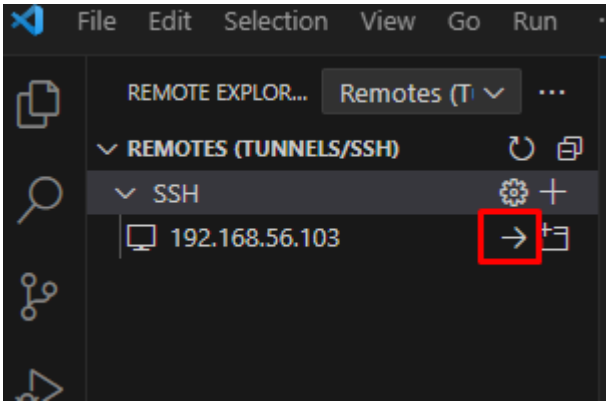


5. ทำตามขั้นตอน 1,2 และขั้นตอนข้างล่าง

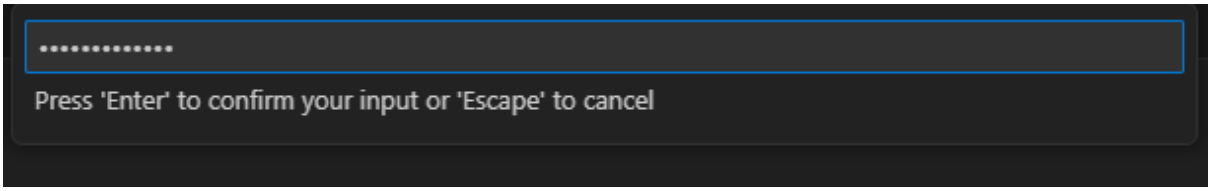




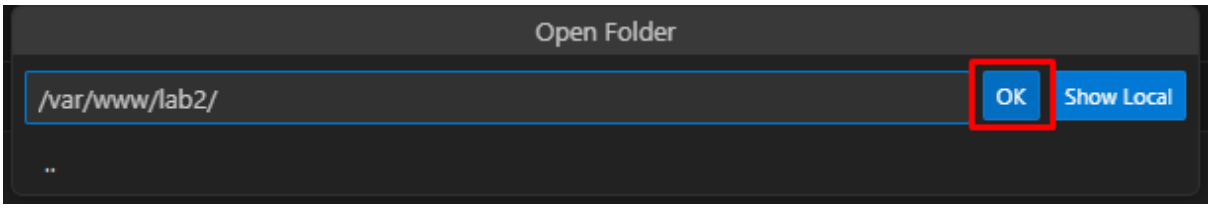
6. Connect to current windows เลือกปลายทางเป็น Linux

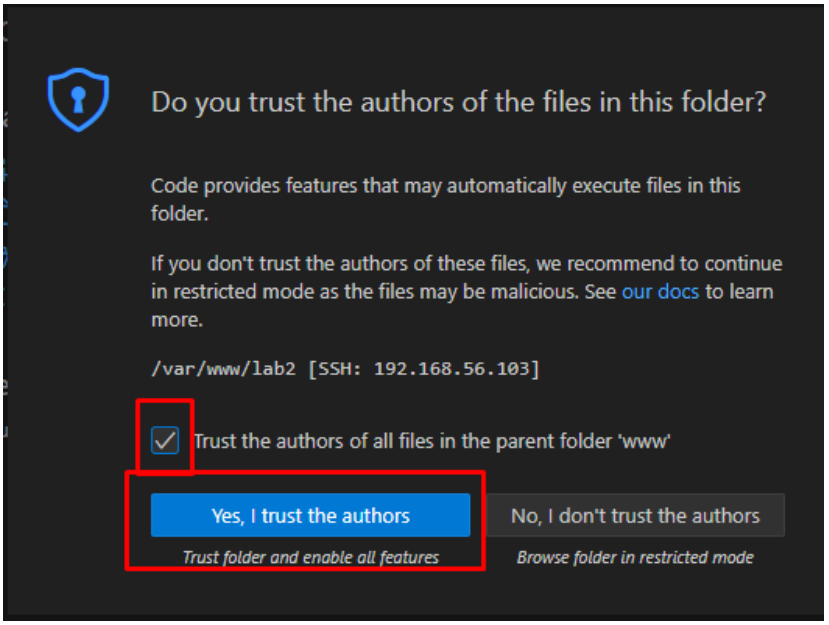


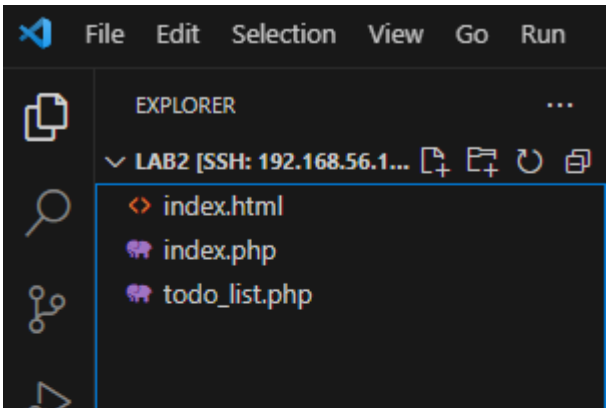
ใส่ Password ของ devuser



พิมพ์ตามนี้แล้วกด OK และใส่ Password อีกครั้ง







Virtual Hosts

1. สร้าง directories lab2-1_001 และ 002

```
devuser@ubuntuserver1:/var/www/lab2$ sudo mkdir -p /var/www/lab2-1_009/public_html
devuser@ubuntuserver1:/var/www/lab2$ sudo mkdir -p /var/www/lab2-2_009/public_html
```

2. เปลี่ยน สิทธิ ของ directories

```
devuser@ubuntuserver1:/var/www/lab2$ sudo chown -R $USER:$USER /var/www/lab2-1_009/public_html
devuser@ubuntuserver1:/var/www/lab2$ sudo chown -R $USER:$USER /var/www/lab2-2_009/public_html
```

3. ให้ สิทธิ ของ directories

```
devuser@ubuntuserver1:/var/www/lab2$ sudo chmod -R 755 /var/www
```

4. สร้าง index.html ทั้งสอง folder

lab2-1_009

```
devuser@ubuntuserver1:/var/www/lab2$ nano /var/www/lab2-1_009/public_html/index.html
```

```
<html>
  <head>
    <title>Welcome to Lab2-1_009!</title>
  </head>
  <body>
    <h1>Success! The Lab2-1_009 virtual host is working!</h1>
  </body>
</html>
```

คัดลอกไฟล์นี้เพื่อใช้เป็นฐานสำหรับไซต์ที่สอง

```
devuser@ubuntuserver1:/var/www/lab2$ cp /var/www/lab2-1_009/public_html/index.html /var/www/lab2-2_009/publi
c_html/index.html
```

lab2-2_009

```
devuser@ubuntuserver1:/var/www/lab2$ nano /var/www/lab2-2_009/public_html/index.html
```

```
<html>
  <head>
    <title>Welcome to Lab2-2_009!</title>
  </head>
  <body>
    <h1>Success! The Lab2-2_009 virtual host is working!</h1>
  </body>
</html>
```

5. Copy 000-default.conf ไป /etc/apache2/sites-available และ เปลี่ยนชื่อเป็น lab2-1_009.conf

```
devuser@ubuntuserver1:/var/www$ sudo cp /etc/apache2/sites-available/000-default.conf /etc/apache2/sites-ava
ilable/lab2-1_009.conf
```

6. เข้าไปแก้ไข lab2-1_009.conf

```
devuser@ubuntuserver1:/var/www$ sudo nano /etc/apache2/sites-available/lab2-1_009.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_009
        ServerName lab2-1_009
        ServerAdmin www.lab2-1_009
        DocumentRoot /var/www/lab2-1_009/public_html

        # Available loglevels: trace8, ..., trace1, debug, info, notice, warn,
        # error, crit, alert, emerg.
        # It is also possible to configure the loglevel for particular
        # modules, e.g.
        #LogLevel info ssl:warn

        ErrorLog ${APACHE_LOG_DIR}/error.log
        CustomLog ${APACHE_LOG_DIR}/access.log combined

        # For most configuration files from conf-available/, which are
        # enabled or disabled at a global level, it is possible to
        # include a line for only one particular virtual host. For example the
        # following line enables the CGI configuration for this host only
        # after it has been globally disabled with "a2disconf".
        #Include conf-available/serve-cgi-bin.conf
</VirtualHost>
```

7. Copy ไฟล์จาก lab2-1 ไป lab2-2

```
devuser@ubuntuserver1:/var/www$ sudo cp /etc/apache2/sites-available/lab2-1_009.conf /etc/apache2/sites-avai
lable/lab2-2_009.conf
```

8. แก้ไข lab2-2_009

```
devuser@ubuntuserver1:/var/www$ sudo nano /etc/apache2/sites-available/lab2-2_009.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_009
        ServerName lab2-2_009
        ServerAdmin www.lab2-2_009
        DocumentRoot /var/www/lab2-2_009/public_html

        # Available loglevels: trace8, ..., trace1, debug, info, notice, warn,
        # error, crit, alert, emerg.
        # It is also possible to configure the loglevel for particular
        # modules, e.g.
        #LogLevel info ssl:warn

        ErrorLog ${APACHE_LOG_DIR}/error.log
        CustomLog ${APACHE_LOG_DIR}/access.log combined

        # For most configuration files from conf-available/, which are
        # enabled or disabled at a global level, it is possible to
        # include a line for only one particular virtual host. For example the
        # following line enables the CGI configuration for this host only
        # after it has been globally disabled with "a2disconf".
        #Include conf-available/serve-cgi-bin.conf
</VirtualHost>
```

9. เปิดใช้งาน Visaulhost files

```
devuser@ubuntuserver1:/var/www$ sudo a2ensite lab2-1_009.conf
Enabling site lab2-1_009.
To activate the new configuration, you need to run:
  systemctl reload apache2
devuser@ubuntuserver1:/var/www$ sudo a2ensite lab2-2_009.conf
Enabling site lab2-2_009.
To activate the new configuration, you need to run:
  systemctl reload apache2
```

10. ตรวจสอบ testconfig

```
devuser@ubuntuserver1:/var/www$ sudo a2dissite 000-default.conf
Site 000-default already disabled
devuser@ubuntuserver1:/var/www$ sudo apache2ctl configtest
AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using 127.0.1.1. Se
t the 'ServerName' directive globally to suppress this message
Syntax OK
```

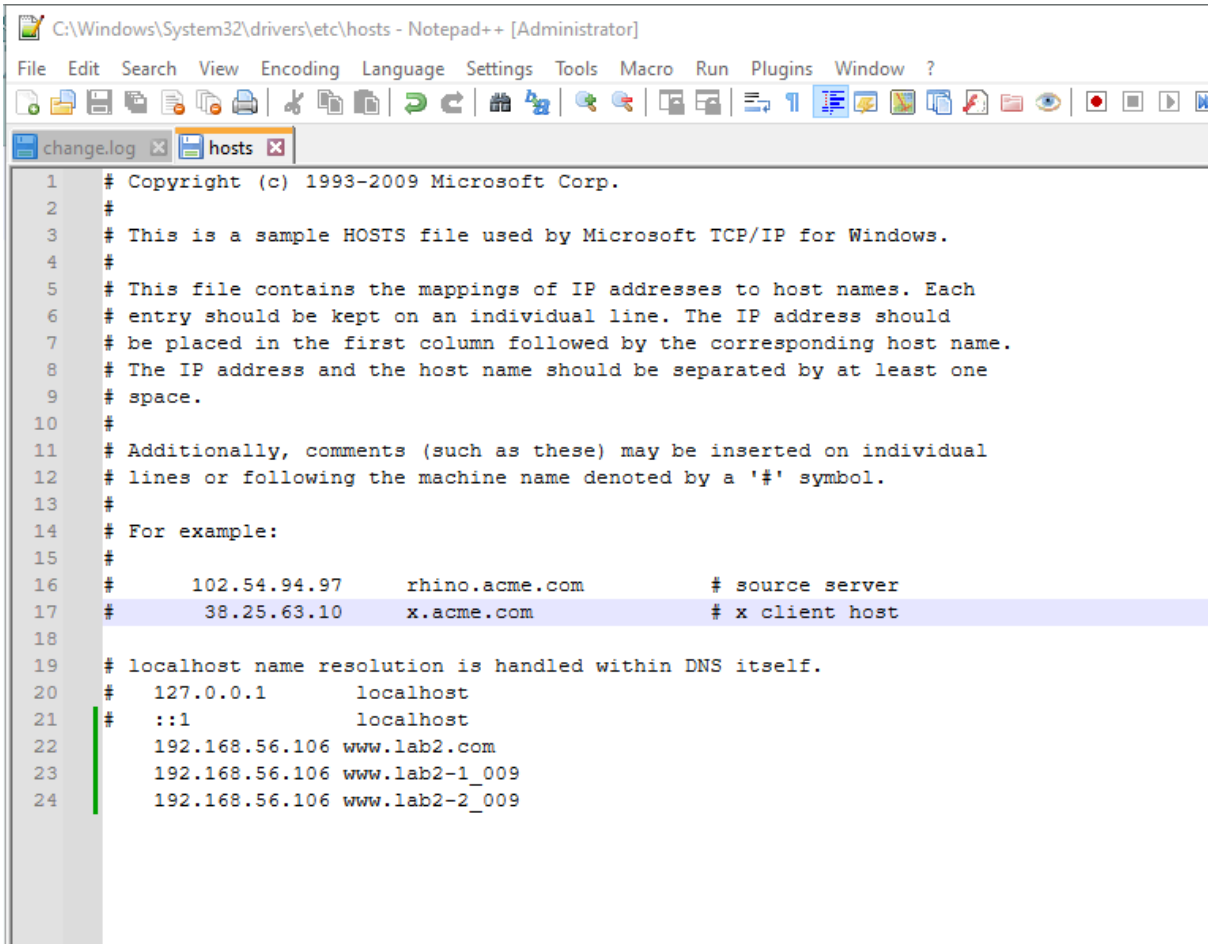
11. Restart apache และเช็ค status

```
devuser@ubuntuserver1:/var/www$ sudo systemctl restart apache2
```

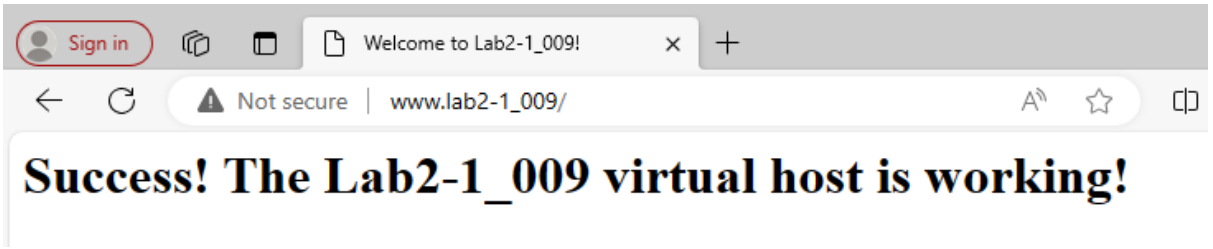
```
devuser@ubuntuserver1:/var/www$ sudo systemctl status apache2
```

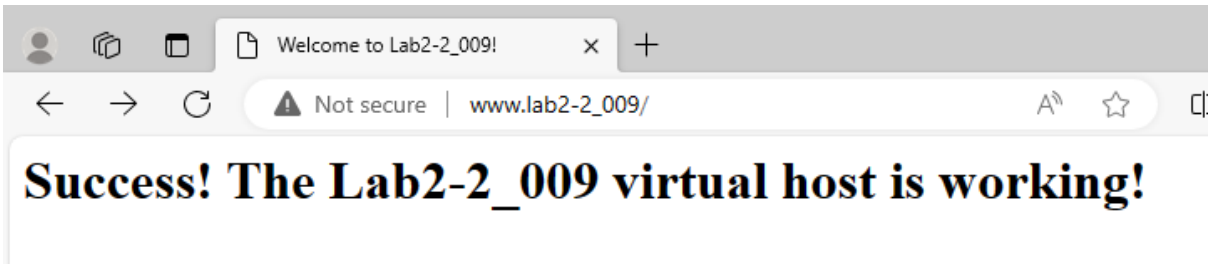
12. ไปแก้ Host ที่ไฟล์

C:\Windows\System32\drivers\etc\hosts



ผลลัพธ์


Sign in
Welcome to Lab2-1_009!
Not secure
www.lab2-1_009/
Success! The Lab2-1_009 virtual host is working!


Welcome to Lab2-2_009!
Not secure
www.lab2-2_009/
Success! The Lab2-2_009 virtual host is working!