

# Hwk4

## Web Server/Services & Git

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ssuyi

# Requirements

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- Apache (35% \* r)
- PHP (20%)
- MySQL (20%)
- Git (20%)
- Bonus (40%)

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# APACHE

# Apache

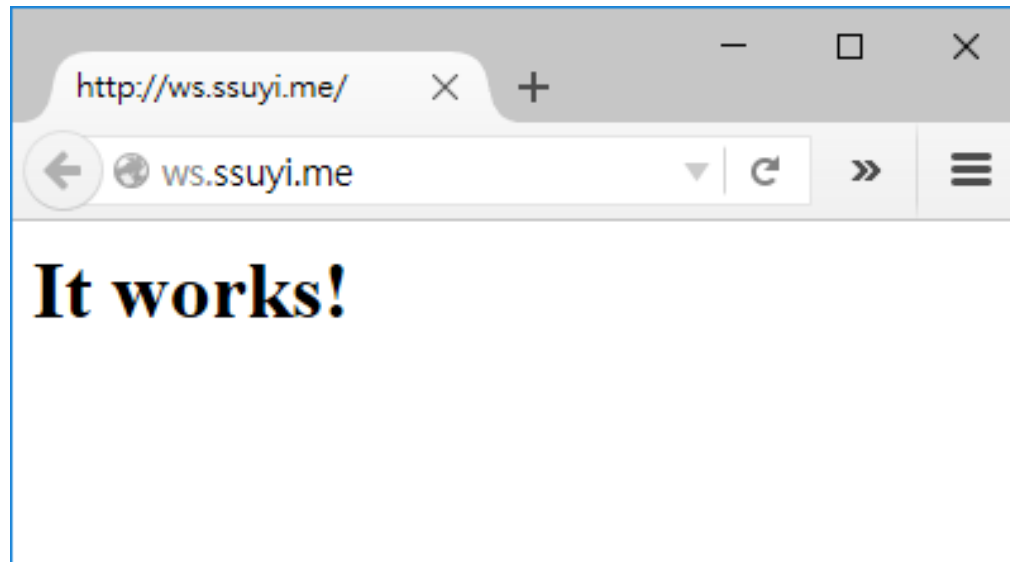
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- Virtual Host (5%)
- Access Control (5%)
- HTTPS (5%)
- .htaccess (5%)
- Userdir (5%)
- Rewrite (10%)

# Apache – Basic System

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- ❑ Install Apache
- ❑ <http://yourIP> or <http://yourDOMAIN> should show as below:

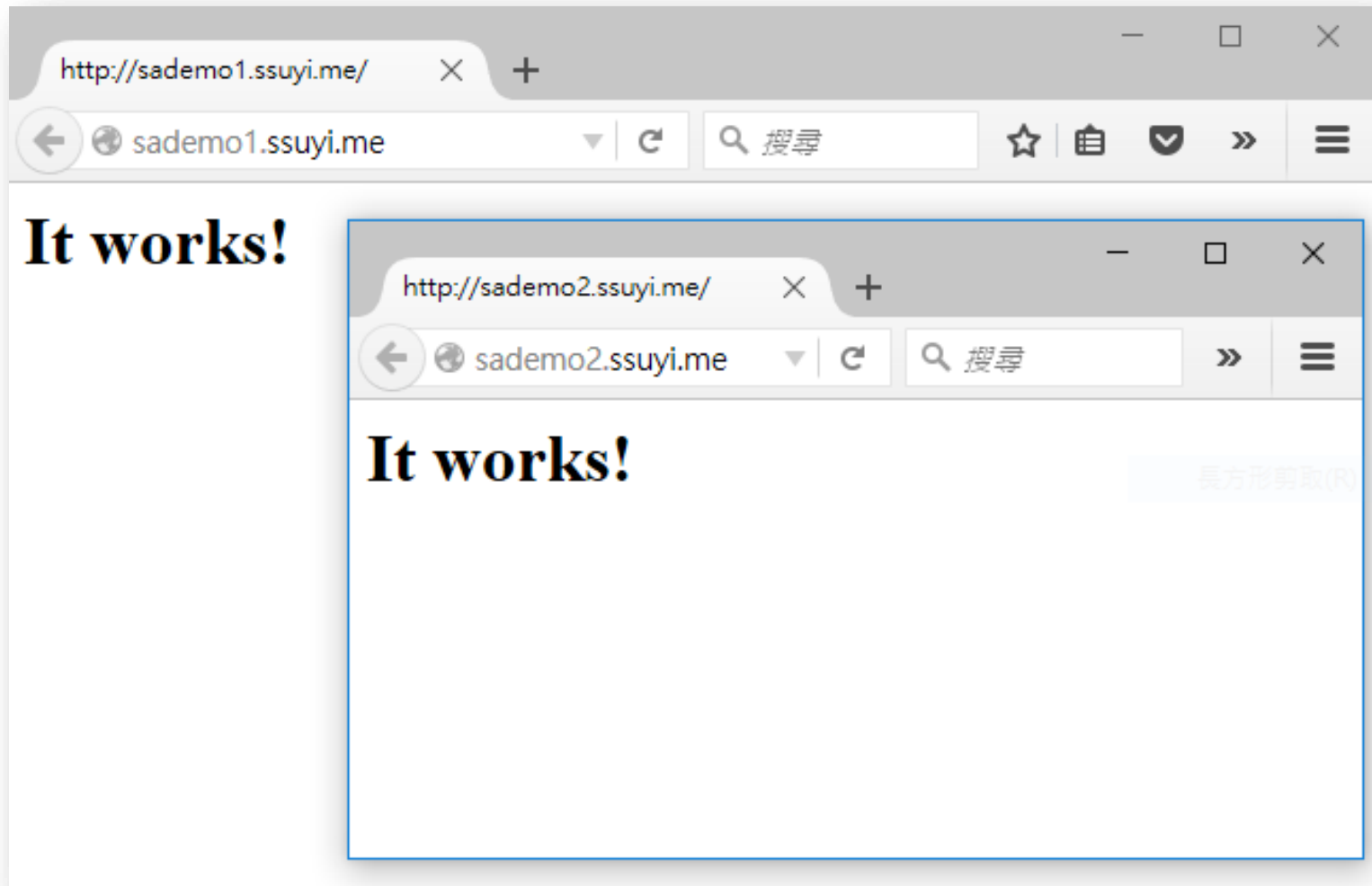


# Apache – Virtual Hosts

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- ❑ Setup **two** name-based virtual hosts in Apache.
- ❑ You can get domain names from:
  - <https://www.nctucs.net/>
  - <http://twbbs.org/>
  - <http://www.noip.com/>
  
- ❑ <http://httpd.apache.org/docs/2.4/vhosts/>

# Apache – Virtual Hosts



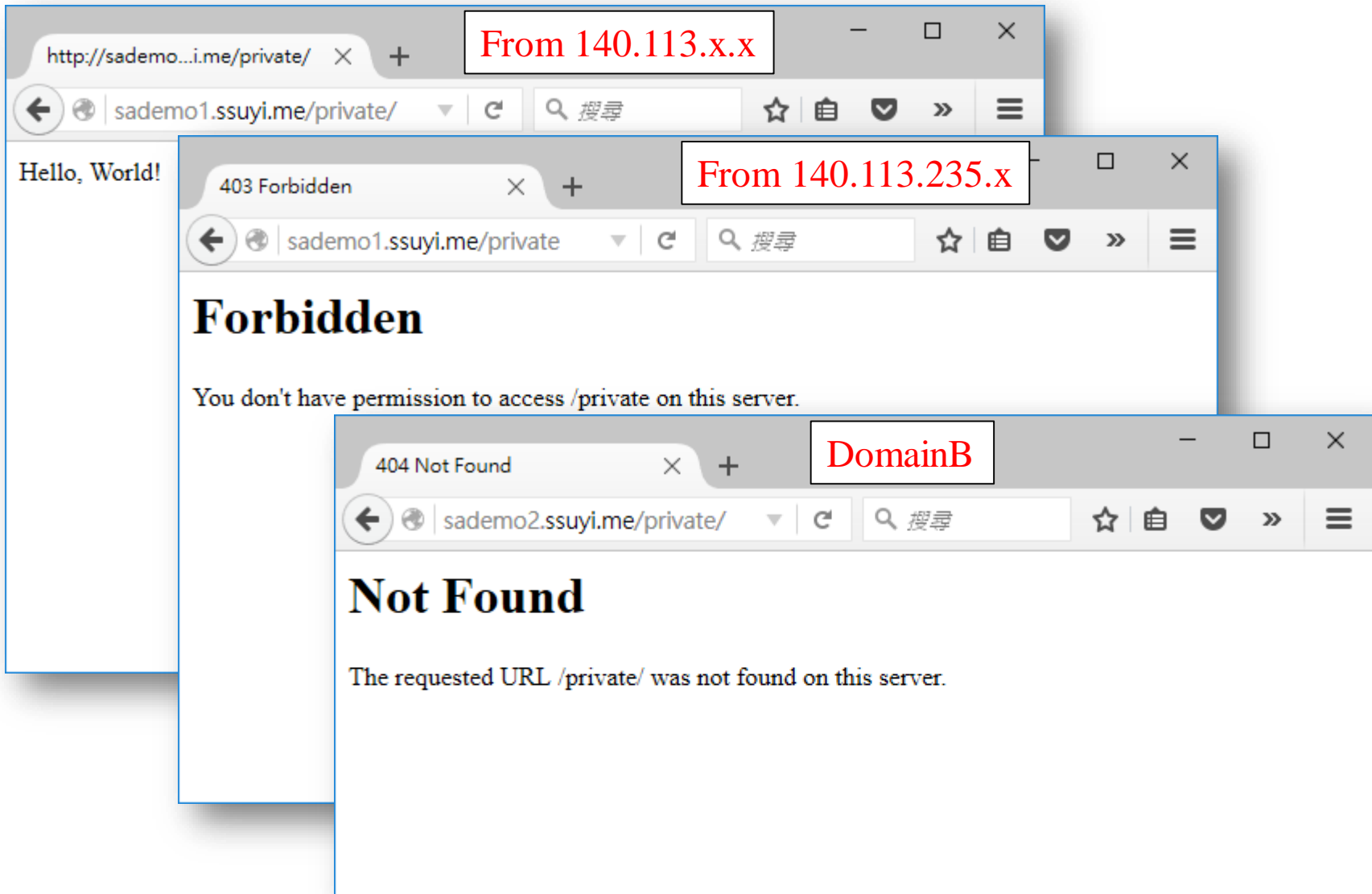
# Access Control

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- ❑ <http://domainA/private>
  - Allow from 140.113.0.0/16
  - Deny from 140.113.235.0/24
- ❑ Print "Hello, World!" only
- ❑ [http://httpd.apache.org/docs/2.4/mod/mod\\_access\\_compat.html](http://httpd.apache.org/docs/2.4/mod/mod_access_compat.html)
- ❑ [http://httpd.apache.org/docs/2.4/mod/mod\\_authz\\_host.html](http://httpd.apache.org/docs/2.4/mod/mod_authz_host.html)
- ❑ [http://httpd.apache.org/docs/2.4/mod/mod\\_alias.html](http://httpd.apache.org/docs/2.4/mod/mod_alias.html)



# Access Control

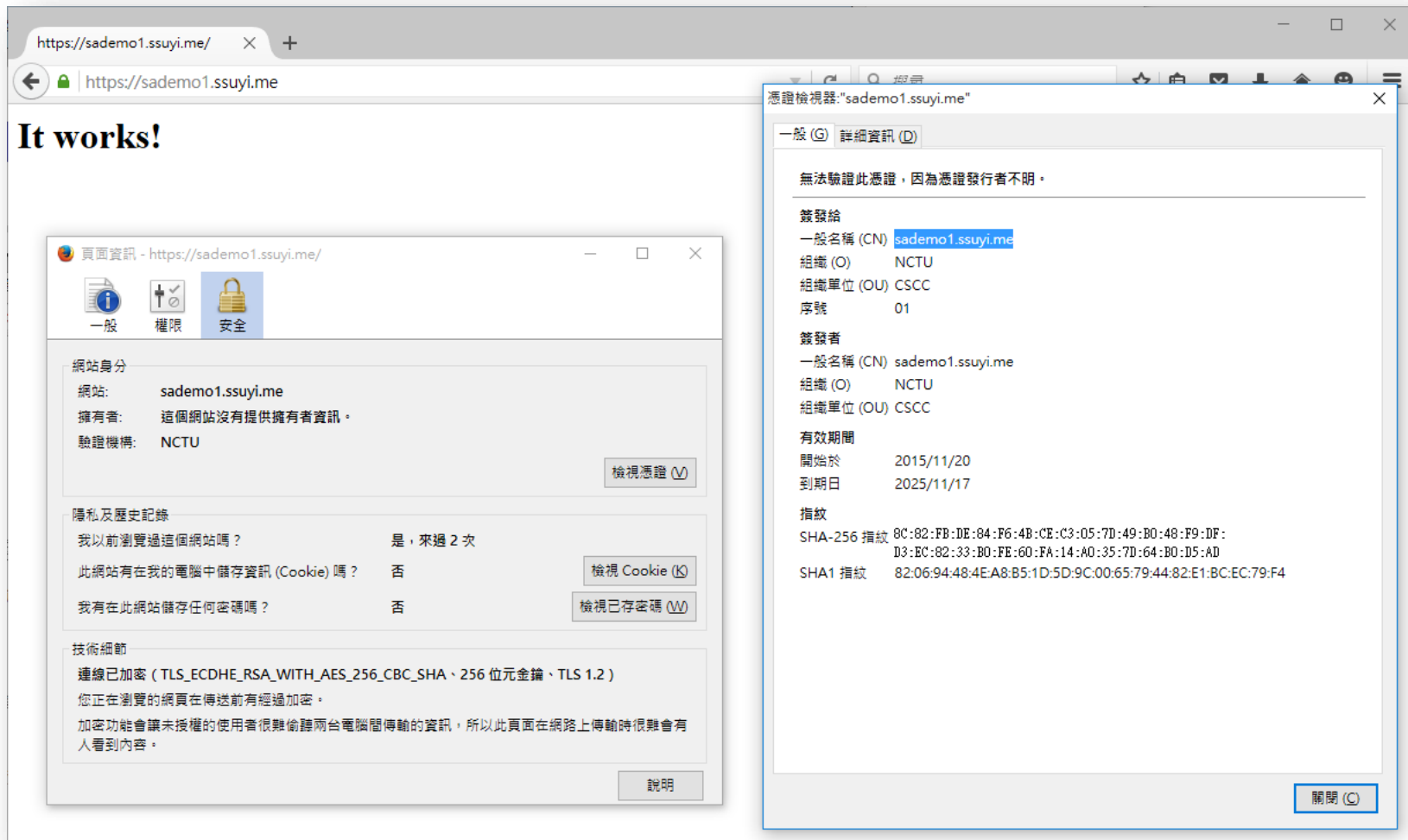


# HTTPS

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- ❑ Generate a CA certificate
- ❑ Generate and sign DomainA's certificate with CA
- ❑ <http://httpd.apache.org/docs/2.4/ssl/>

# HTTPS

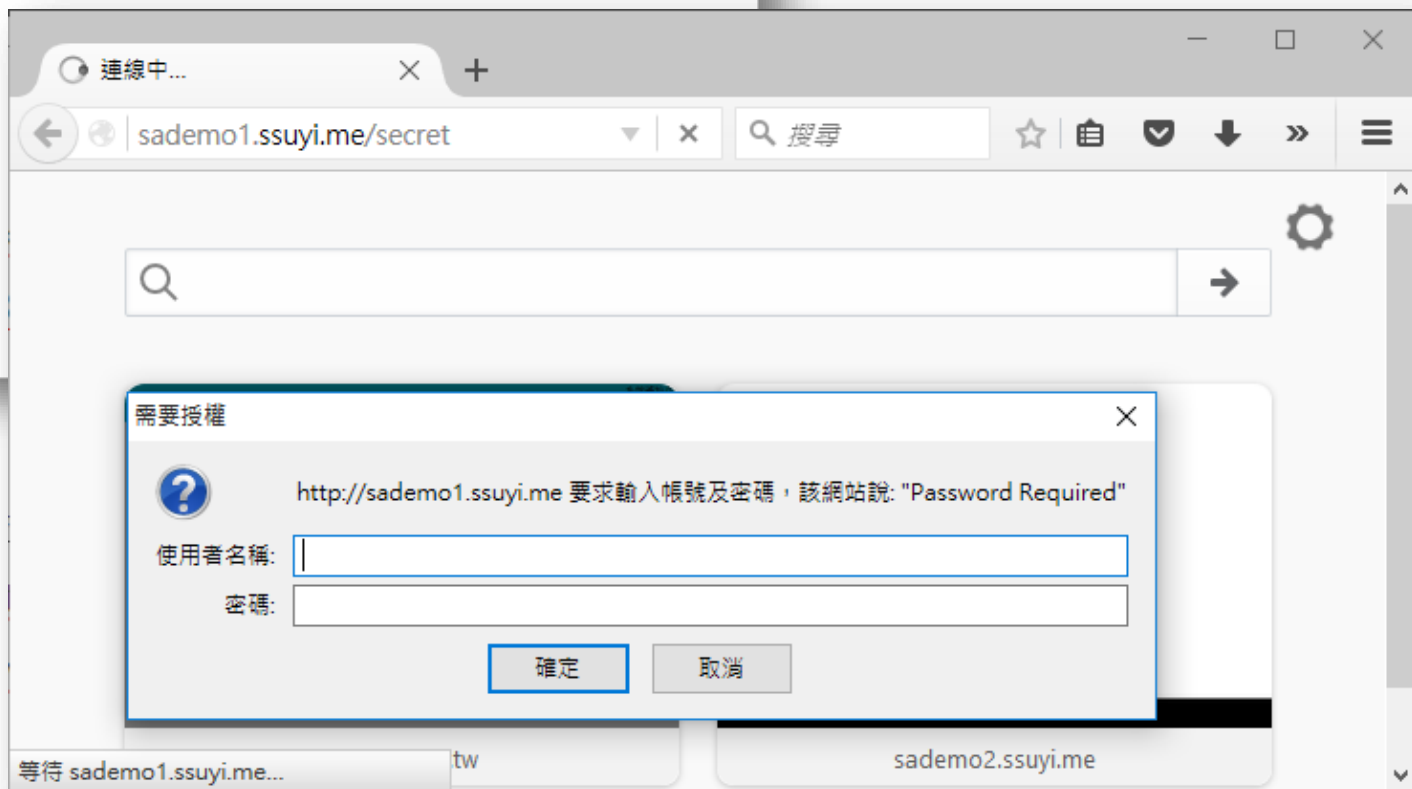
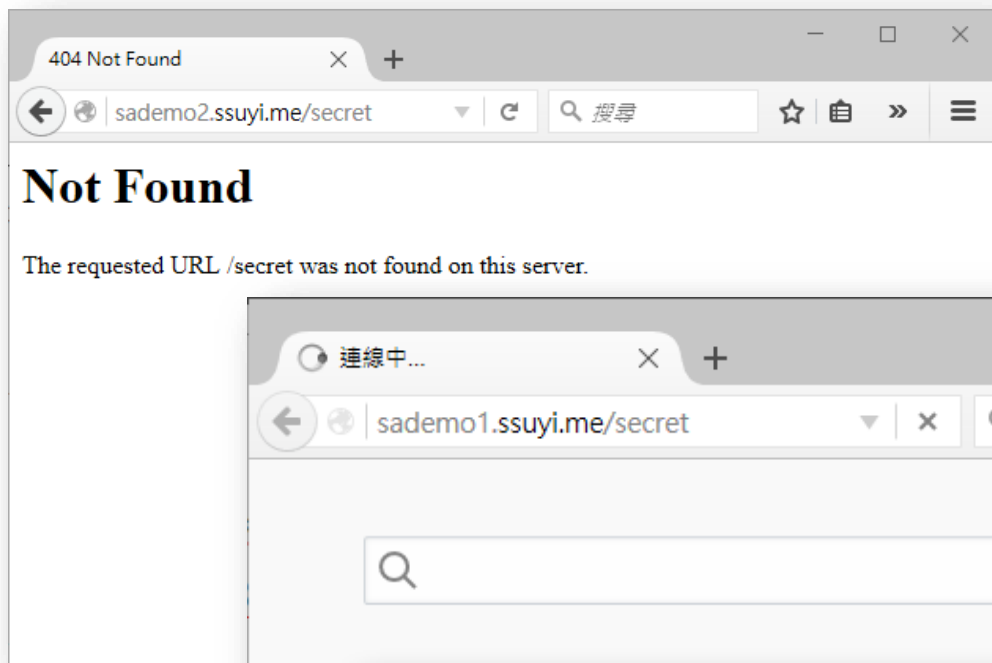


# .htaccess

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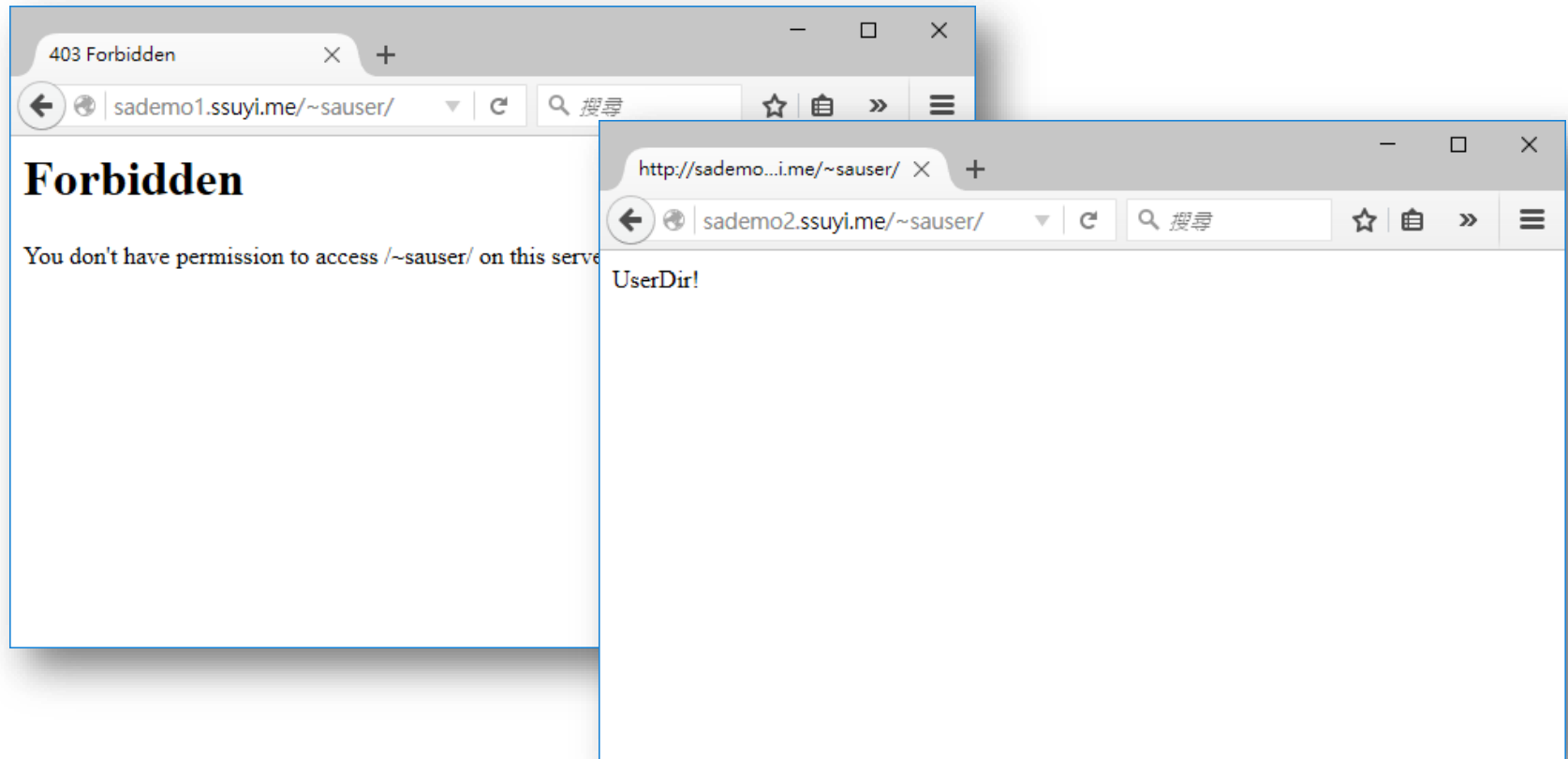
- ❑ When access <http://DomainA/secret/>
  - Need enter your student ID as username.
  - And use #nctuNASA password to access this page
- ❑ This page will print your student ID.
  
- ❑ <http://httpd.apache.org/docs/2.4/howto/htaccess.html>

# .htaccess



# UserDir

- ❑ Create a user named "sauser"
- ❑ When accessing <http://DomainB/~sauser/> will print "UserDir!"
- ❑ [http://httpd.apache.org/docs/2.4/howto/public\\_html.html](http://httpd.apache.org/docs/2.4/howto/public_html.html)



# Rewrite(1)

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❑ When you access

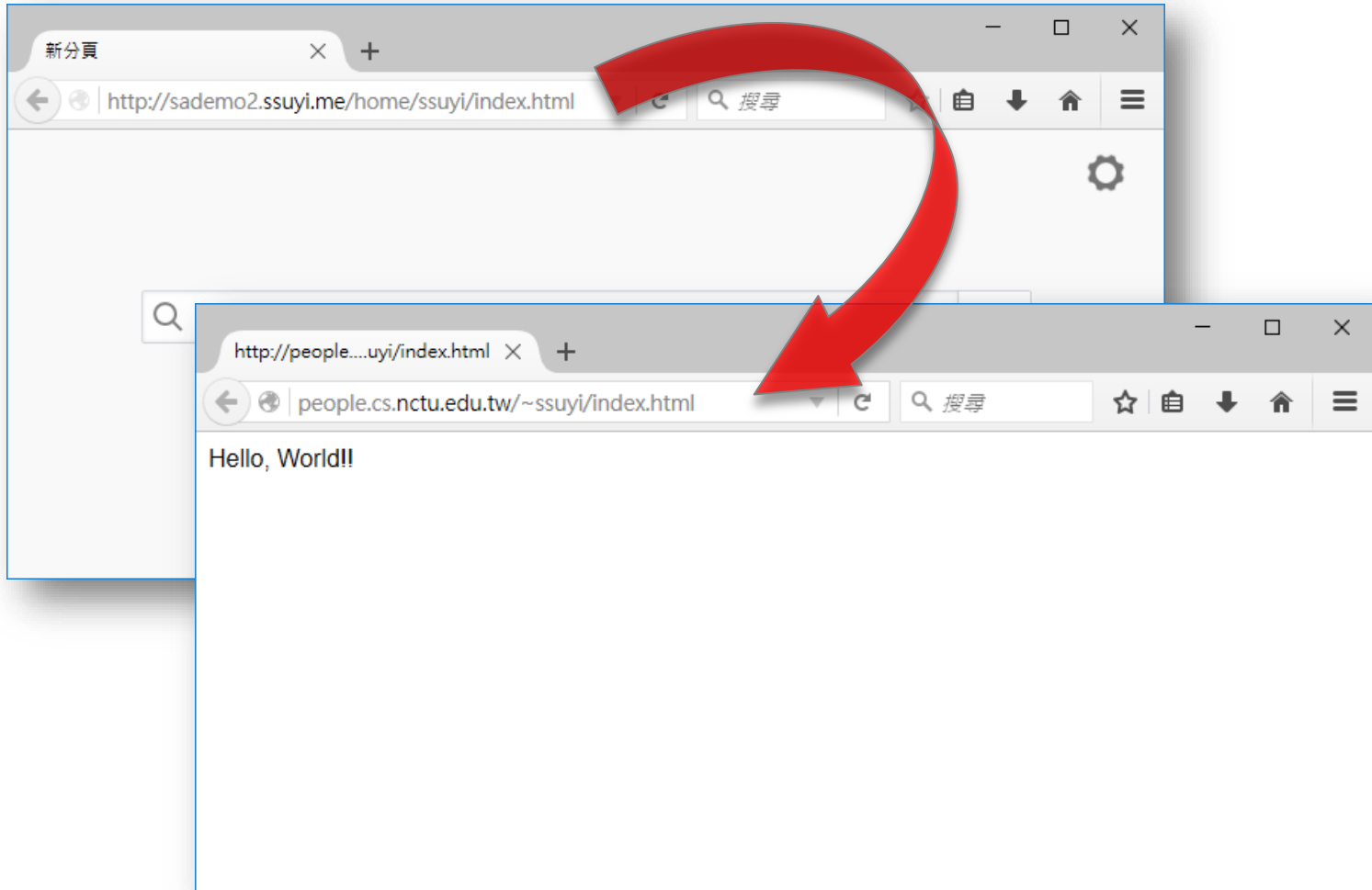
[http://DomainB/home/\[a-zA-Z0-9\]+/.\\*](http://DomainB/home/[a-zA-Z0-9]+/.) , it will redirect to  
[http://people.cs.nctu.edu.tw/~\[a-zA-Z0-9\]+/.\\*](http://people.cs.nctu.edu.tw/~[a-zA-Z0-9]+/)

❑ However

- \*.mp3, \*.exe file would be forbidden.

❑ [http://httpd.apache.org/docs/2.4/mod/mod\\_rewrite.html](http://httpd.apache.org/docs/2.4/mod/mod_rewrite.html)

# Rewrite(1)



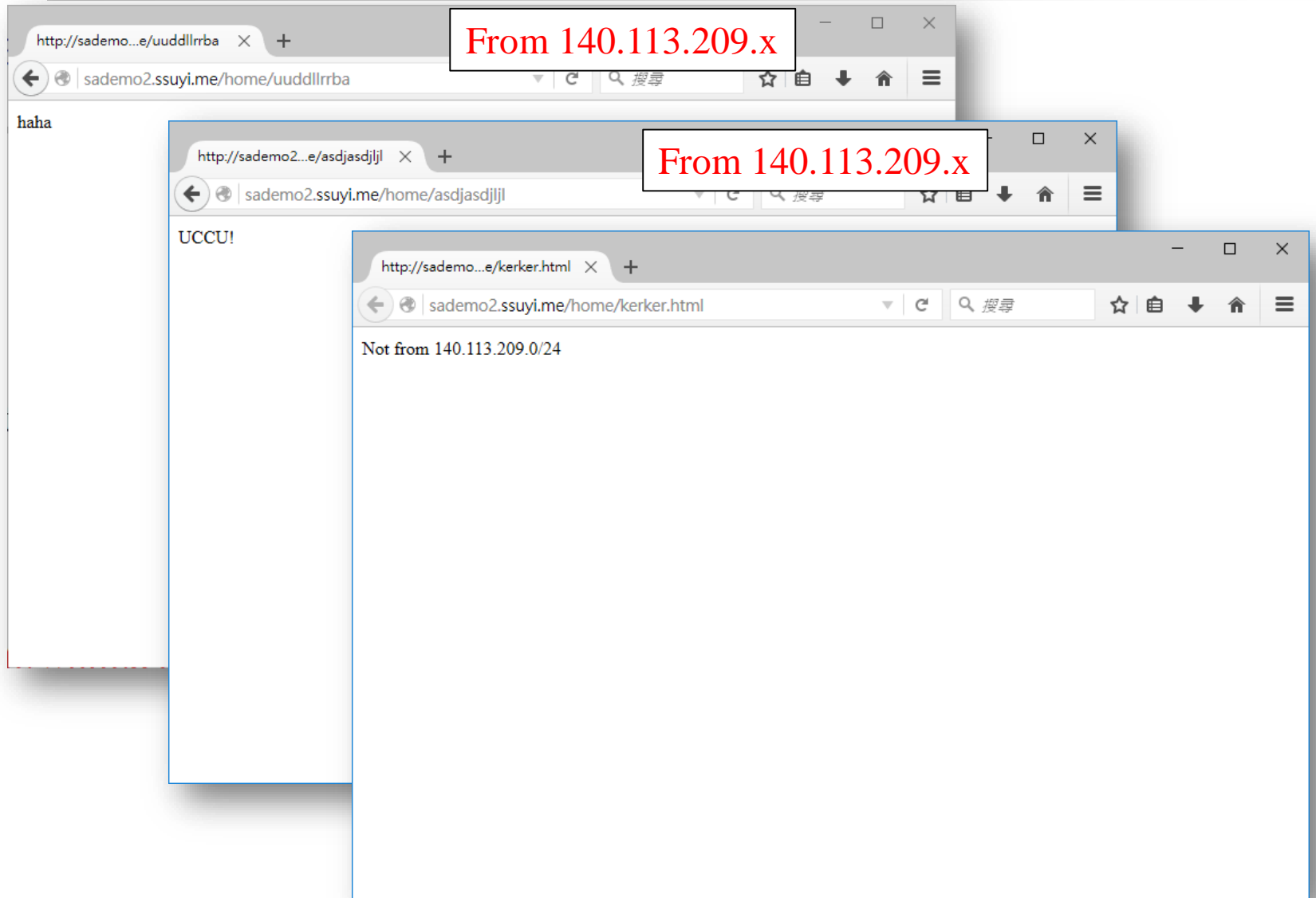


# Rewrite(2)

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- ❑ If the connection came from 140.113.209.\* :
  - Redirect http://DomainB/home/uuddllrrba
  - To http://DomainB/haha.html
  - Redirect http://DomainB/home/\*
  - To http://DomainB/uccu.html which prints "UCCU"
  
- ❑ Otherwise don't redirect.
  
- ❑ http://httpd.apache.org/docs/2.4/mod/mod\_rewrite.html

# Rewrite(2)



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# PHP

# PHP

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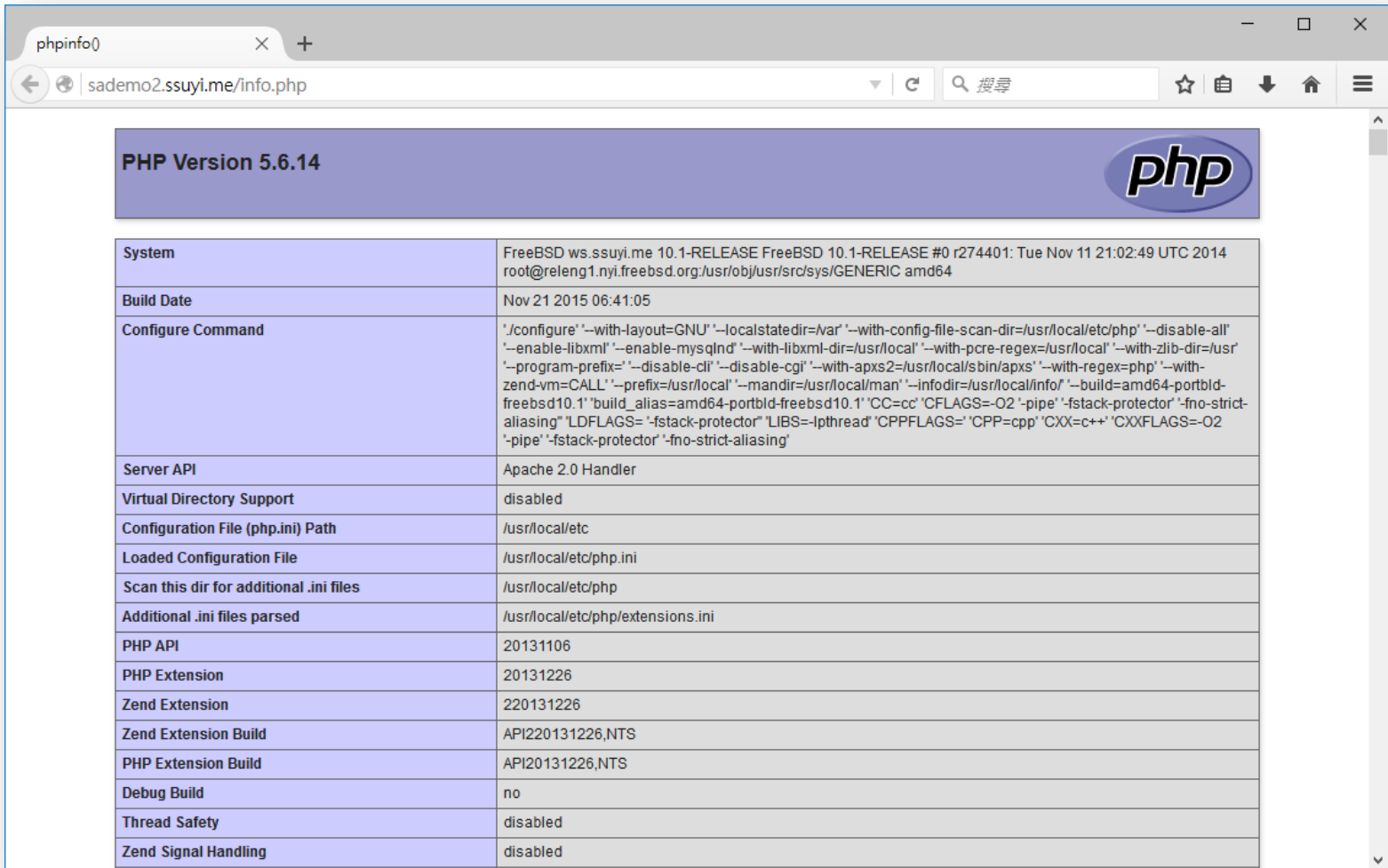
- Show IP (4%)
- CRUD (16%)

# PHP

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- ❑ <http://DomainB/info.php>
  - Print out phpinfo()
- ❑ <http://DomainB/myip.php>
  - Print out client's IP address.

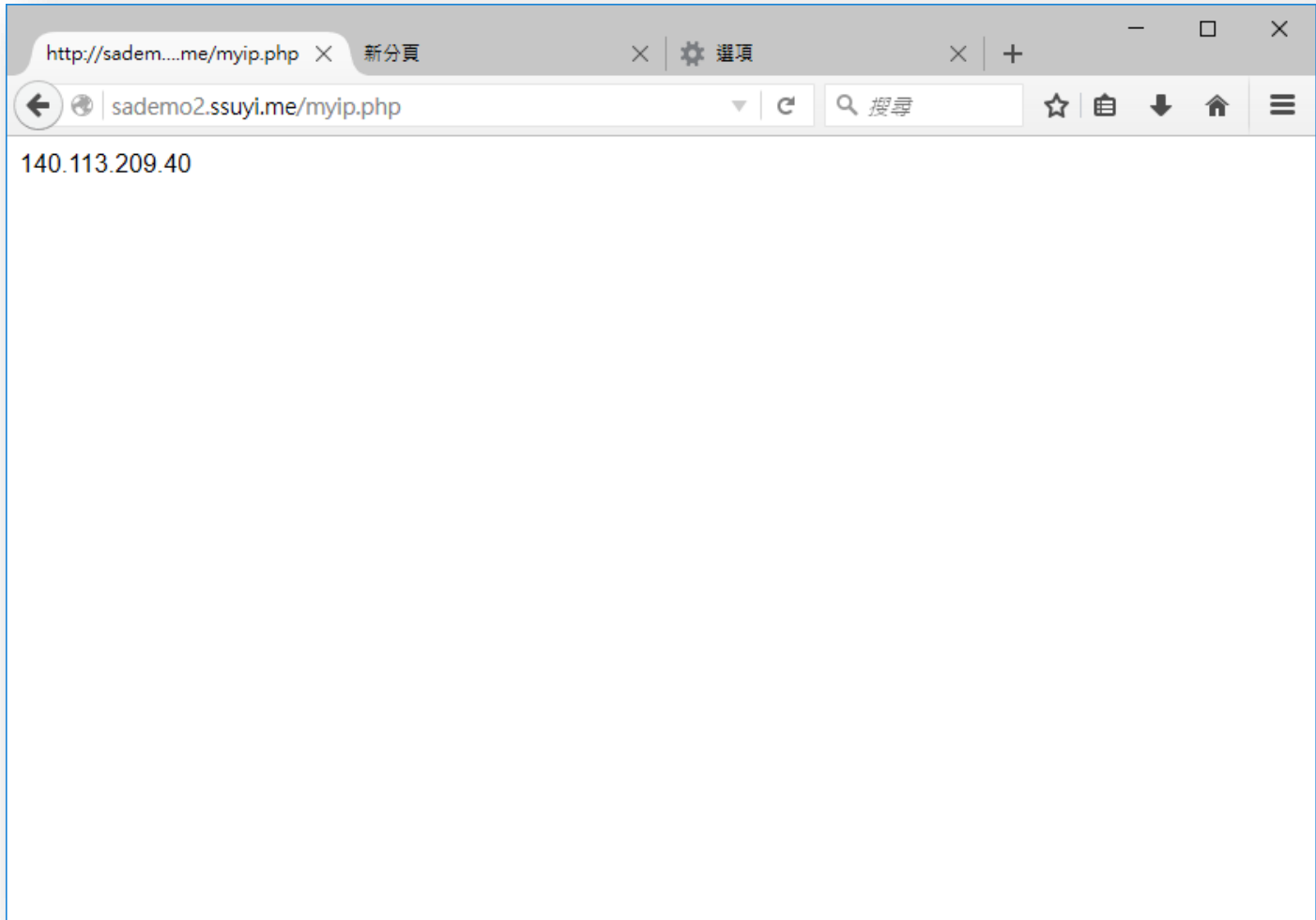
# PHP



**PHP Version 5.6.14**

System	FreeBSD ws.ssuyi.me 10.1-RELEASE FreeBSD 10.1-RELEASE #0 r274401: Tue Nov 11 21:02:49 UTC 2014 root@releg1.nyi.freebsd.org:/usr/obj/usr/src/sys/GENERIC amd64
Build Date	Nov 21 2015 06:41:05
Configure Command	./configure '--with-layout=GNU' '--localstatedir=/var' '--with-config-file-scan-dir=/usr/local/etc/php' '--disable-all' '--enable-libxml' '--enable-mysqld' '--with-libxml-dir=/usr/local' '--with-pcre-regex=/usr/local' '--with-zlib-dir=/usr' '--program-prefix=' '--disable-cli' '--disable-cgi' '--with-apxs2=/usr/local/sbin/apxs' '--with-regex=php' '--with-zend-vm=CALL' '--prefix=/usr/local' '--mandir=/usr/local/man' '--infodir=/usr/local/info' '--build=amd64-portbld-freebsd10.1' 'build_alias=amd64-portbld-freebsd10.1' 'CC=cc' 'CFLAGS=-O2' '-pipe' '-fstack-protector' '-fno-strict-aliasing' 'LDFLAGS=-fstack-protector' 'LIBS=-pthread' 'CPPFLAGS=' 'CPP=cpp' 'CXX=c++' 'CXXFLAGS=-O2' '-pipe' '-fstack-protector' '-fno-strict-aliasing'
Server API	Apache 2.0 Handler
Virtual Directory Support	disabled
Configuration File (php.ini) Path	/usr/local/etc
Loaded Configuration File	/usr/local/etc/php.ini
Scan this dir for additional .ini files	/usr/local/etc/php
Additional .ini files parsed	/usr/local/etc/php/extensions.ini
PHP API	20131106
PHP Extension	20131226
Zend Extension	220131226
Zend Extension Build	API220131226,NTS
PHP Extension Build	API20131226,NTS
Debug Build	no
Thread Safety	disabled
Zend Signal Handling	disabled

# PHP



# CRUD

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## ❑ CRUD

- Create, **R**ead, Update, **D**elete

## ❑ Write a simple web application has CRUD actions.

- <http://DomainB/crud/>

## ❑ Can play with entries (id, ip, nick, etc.)

- Add an entry
- Show all entry
- Modify an entry
- Remove an entry

## ❑ You can use any PHP framework (CI, Laravel, ...) to develop your application



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# **MYSQL**

# MySQL

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- Basic (5%)
- phpMyAdmin (5%)
- Blog (10%)

# MySQL

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## ❑ Basic

- Add a user "sauser", password is your **student ID**.
- Can only connect MySQL server from **140.113.168.0/24**
  - `mysql -h [host] -u sauser -p`
- This user can SELECT, INSERT, UPDATE, CREATE
- You can test on nplinux\*, npbsd\*

# phpMyAdmin

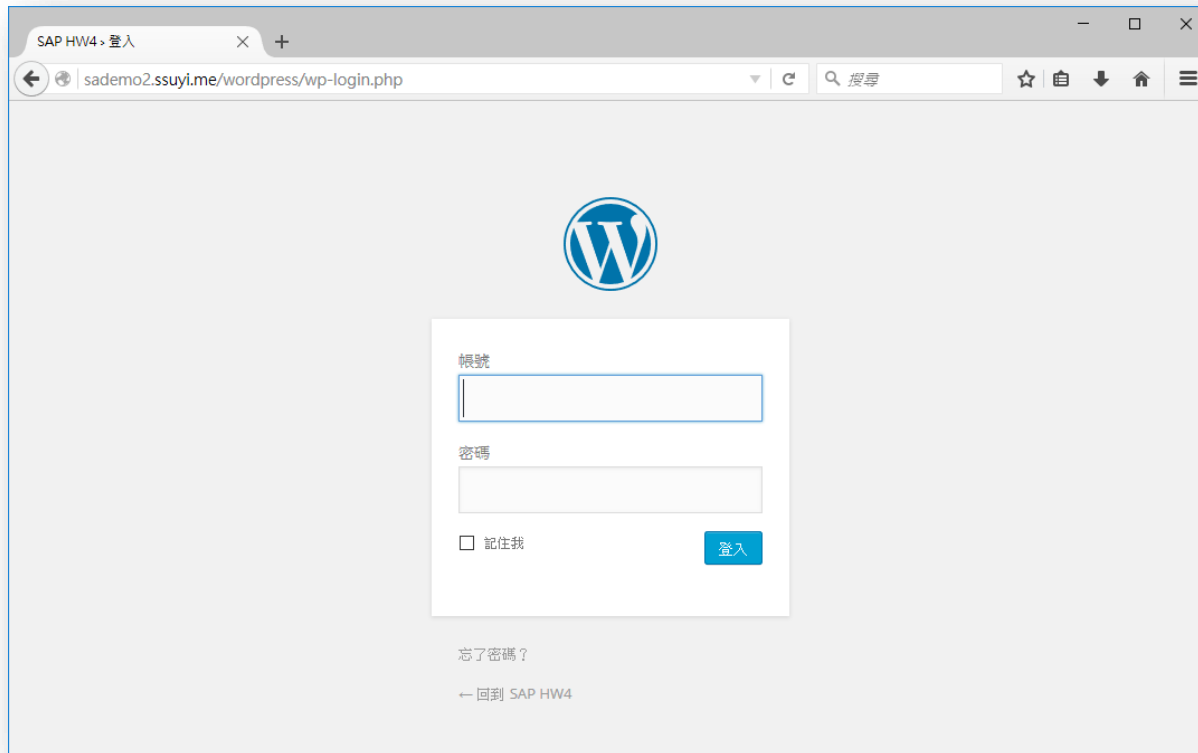
## ❑ Install phpMyAdmin

- <http://DomainB/phpMyAdmin/>

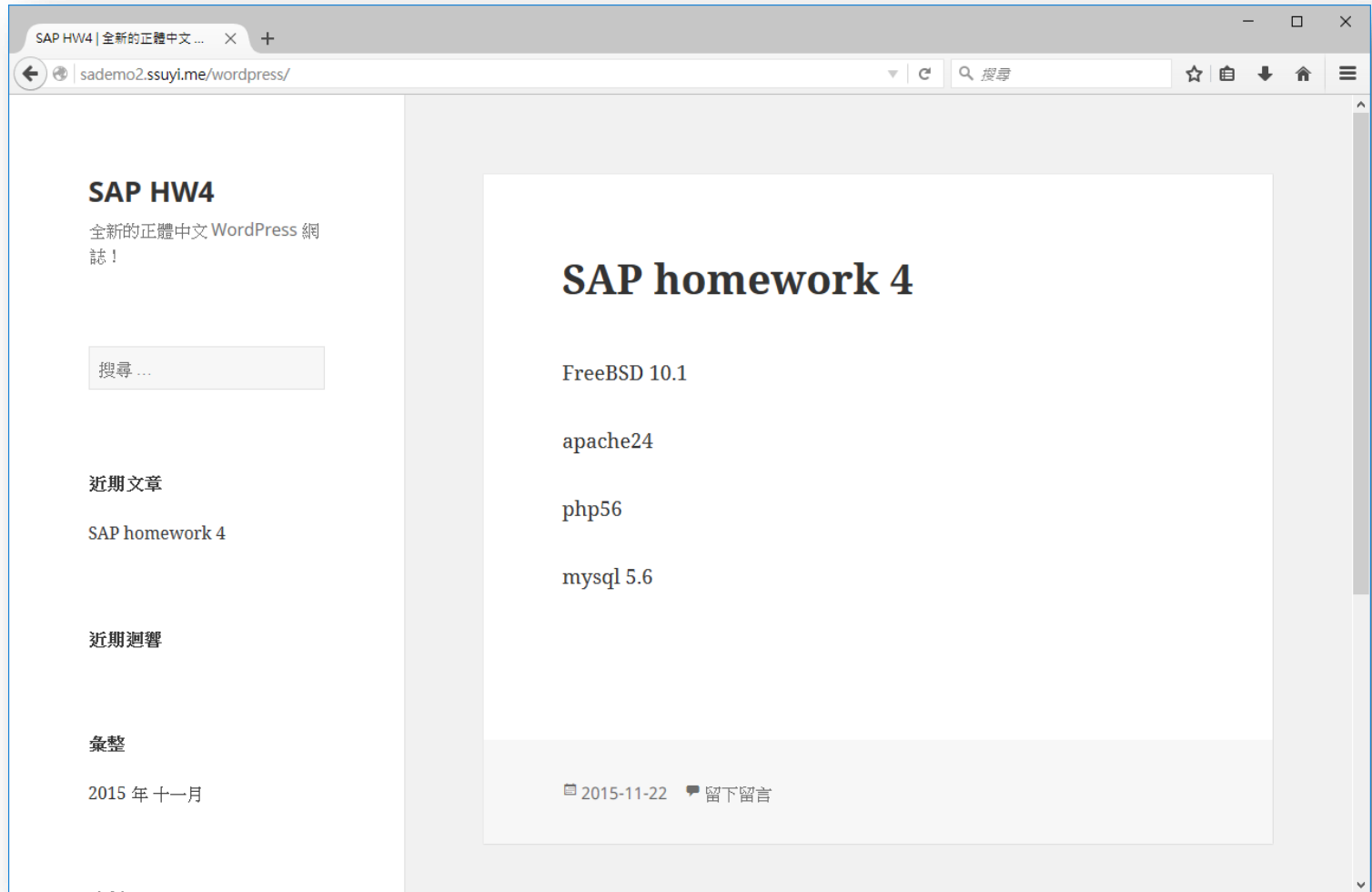


# Blog

- ❑ Install Wordpress
  - <http://DomainB/wordpress/>
- ❑ Write a blog post about SAP or hw4



# Blog



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# **GIT**

# Git

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- ❑ Basic Usage (5% and **r** in the first part 0.8 ~ 1.2)
- ❑ GitWeb (5%)
- ❑ Git Clone (5%)
- ❑ Git Push (10%)





# GitWeb

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- ❑ <http://DomainB/gitweb/>
  - Can see your repository "apache-conf"

# Git Clone

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## ❑ Can clone git repository by other

- Use git and http protocol
- Clone without username/passwd
- `git clone git://Domain/git/apache-conf.git`
- `git clone http://Domain/git/apache-conf.git`
  - Can be seen on the gitweb at the same time.

# Git push/pull

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## ❑ Can push/pull your repository

- HTTP, git protocol
- Username is studentID, password is IRC's password.
- `git pull http(s)://Domain/git/apache-conf.git (5%)`
- `git push http(s)://Domain/git/apache-conf.git (5%)`
- git protocol should work too.

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# **BONUS**

# Bonus

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- FastCGI (5%)
- Nginx Reverse Proxy (10%)
- Nginx HTTP/2 support (10%)
- GitLab (15%)

# FastCGI

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- Use FastCGI to handle PHP.
- phpinfo() should print out like:

<b>Server API</b>	FPM/FastCGI
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or

<b>Server API</b>	CGI/FastCGI
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# Nginx Reverse Proxy

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- Install nginx
- Reverse proxy Nginx to apache server
- <http://IPorDomain:8080/> work (5%)
- php can work (5%)



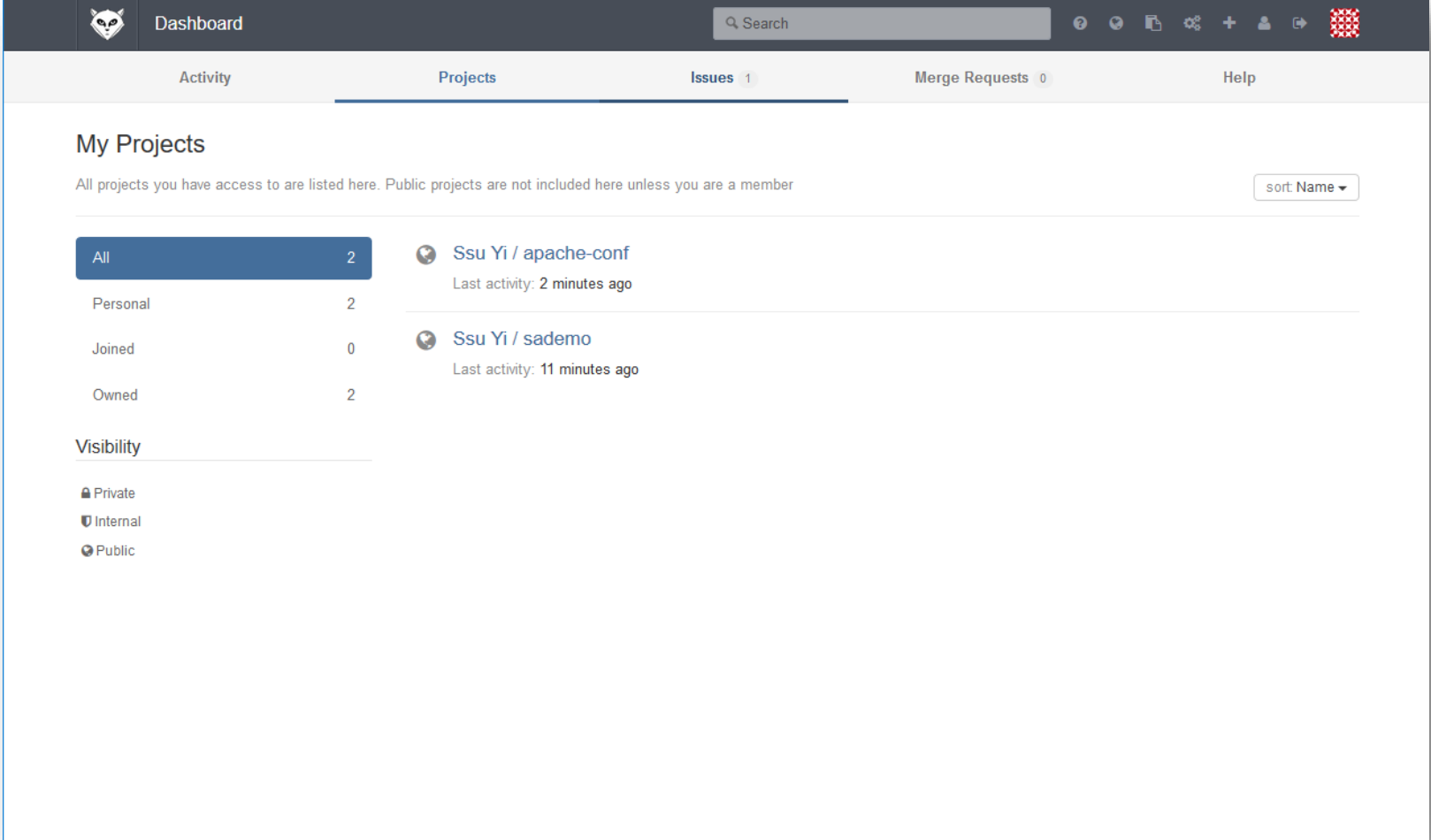
# Nginx HTTP/2

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- ❑ Let your Nginx server support HTTP/2
- ❑ <http://IPorDomain:8082/> work

# GitLab



 <http://DomainB/gitlab>



The screenshot shows the GitLab dashboard interface. At the top, there is a navigation bar with the GitLab logo, a search bar, and several utility icons. Below the navigation bar, there are tabs for 'Activity', 'Projects', 'Issues 1', 'Merge Requests 0', and 'Help'. The 'Projects' tab is currently selected.

### My Projects

All projects you have access to are listed here. Public projects are not included here unless you are a member sort: Name ▾

All	2	 Ssu Yi / apache-conf Last activity: 2 minutes ago
Personal	2	
Joined	0	 Ssu Yi / sademo Last activity: 11 minutes ago
Owned	2	

### Visibility

- Private
- Internal
- Public

# GitLab

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- Can create user
- Can create project and push/pull
- Other function on the web page must work.