

# Report on

## Lab 1: Apache Web Server Installation & Maintenance

### Initial Setup

Since I have a Windows PC, I tried running Ubuntu on WSL (Windows Subsystem for Linux) which is a compatibility layer developed by Microsoft that allows one to run a Linux environment directly on Windows — without needing a virtual machine or dual boot setup.

### Checkpoint 1

I follow the tutorial from [How To Install the Apache Web Server on Ubuntu 18.04 | DigitalOcean](#) link and Install the Apache Web Server.

Some of the process is Shown below:

```
sowmik@LAPTOP-AS24T7P9:~$ sudo apt install apache2
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
apache2 is already the newest version (2.4.58-1ubuntu8.8).
0 upgraded, 0 newly installed, 0 to remove and 193 not upgra-
ded.
```

Then this shows up as I have installed Apache before

```
sowmik@LAPTOP-AS24T7P9:~$ sudo ufw app list
Available applications:
 Apache
 Apache Full
 Apache Secure
sowmik@LAPTOP-AS24T7P9:~$ sudo ufw allow 'Apache'
Skipping adding existing rule
Skipping adding existing rule (v6)
sowmik@LAPTOP-AS24T7P9:~$ sudo ufw status
Status: active

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

The next screenshot confirms that the Apache is installed and running properly

```

● apache2.service - The Apache HTTP Server
  Loaded: loaded (/usr/lib/systemd/system/apache2.service; >
  Active: active (running) since Sat 2025-11-08 11:24:27 +>
    Docs: https://httpd.apache.org/docs/2.4/
  Process: 207 ExecStart=/usr/sbin/apachectl start (code=ex>
 Main PID: 277 (apache2)
   Tasks: 55 (limit: 9163)
  Memory: 8.4M (peak: 9.9M)
     CPU: 139ms
    CGroup: /system.slice/apache2.service
            └─277 /usr/sbin/apache2 -k start
              ├─281 /usr/sbin/apache2 -k start
              ├─283 /usr/sbin/apache2 -k start

Nov 08 11:24:26 LAPTOP-AS24T7P9 systemd[1]: Starting apache2.>
Nov 08 11:24:27 LAPTOP-AS24T7P9 systemd[1]: Started apache2.s>
~
~
~
~
```

If I run this command, this shows up

```
sowmik@LAPTOP-AS24T7P9:~$ hostname -I
172.26.66.168
```

And when I go to this IP address, this shows

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

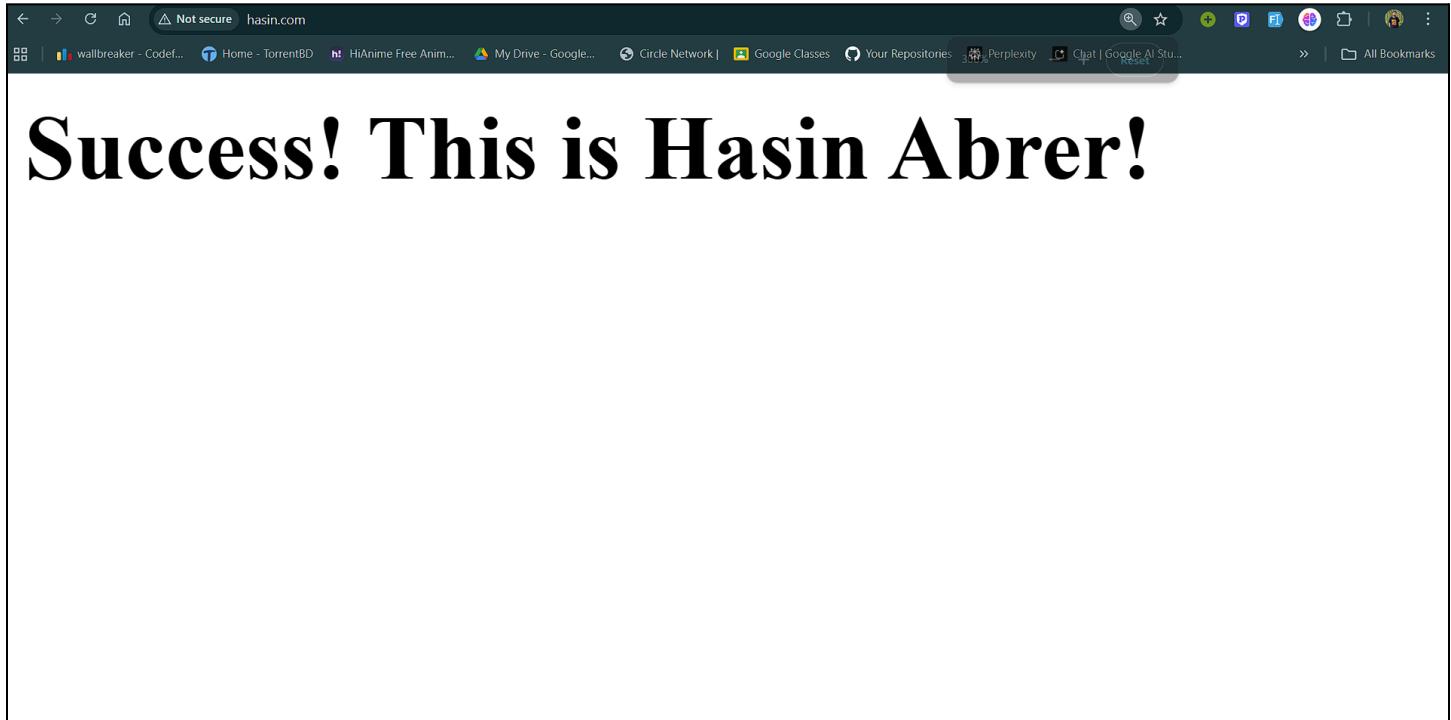
```

- `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.
- They are activated by symlinking available configuration files from their respective `*-available/` counterparts. These should be managed by using `a2enmod`, `a2dismod`, `a2ensite` and `a2dissite`.

This confirms that Apache is working correctly.

## Checkpoint 2

Time for setting up a single virtual host. As I tried [webserlab.com](http://webserlab.com) and [example.com](http://example.com) I'll demonstrate it by creating a new virtual host.



Created!

## Checkpoint 3

### **Observations**

<http://webserverlab.com>: When accessing webserverlab.com, Apache serves the example.com virtual host because the default site (000-default.conf) was disabled. Apache uses the first available virtual host as the default when no matching ServerName or ServerAlias is found. Since example.com was the only enabled virtual host, it became the default.