Bharatiya Vidya Bhavan's
Sardar Patel Institute of Technology
Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058-India
(Autonomous College Affiliated to University of Mumbai)

Computer Engineering Department
Engineering Department

Academic Year: 2021-2022

Class: S.Y.B.Tech **Sem.:** 4 **Course:** CCN

Name	**Pratik Pujari**		
UID no.	**2020300054**	**Class:**	**Comps C Batch**
Experiment No.	5		

AIM:	To implement Apache server on a Linux machine
THEORY:	**APACHE WEB SERVER** Apache is the most commonly used Web server on Linux systems. Web servers are used to serve Web pages requested by client computers. Clients typically request and view Web pages using Web browser applications such as Firefox, Opera, Chromium, or Internet Explorer. Users enter a Uniform Resource Locator (URL) to point to a Web server by means of its Fully Qualified Domain Name (FQDN) and a path to the required resource. The most common protocol used to transfer Web pages is the Hyper Text Transfer Protocol (HTTP). Protocols such as Hyper Text Transfer Protocol over Secure Sockets Layer (HTTPS), and File Transfer Protocol (FTP), a protocol for uploading and downloading files, are also supported. Apache Web Servers are often used in combination with the MySQL database engine, the HyperText Preprocessor (PHP) scripting language, and other popular scripting languages such as Python and Perl. This configuration is termed LAMP (Linux, Apache, MySQL and Perl/Python/PHP) and forms a powerful and robust platform for the development and deployment of Web-based applications. **Installation** The Apache2 web server is available in Ubuntu Linux. To install Apache2: At a terminal prompt enter the following command:

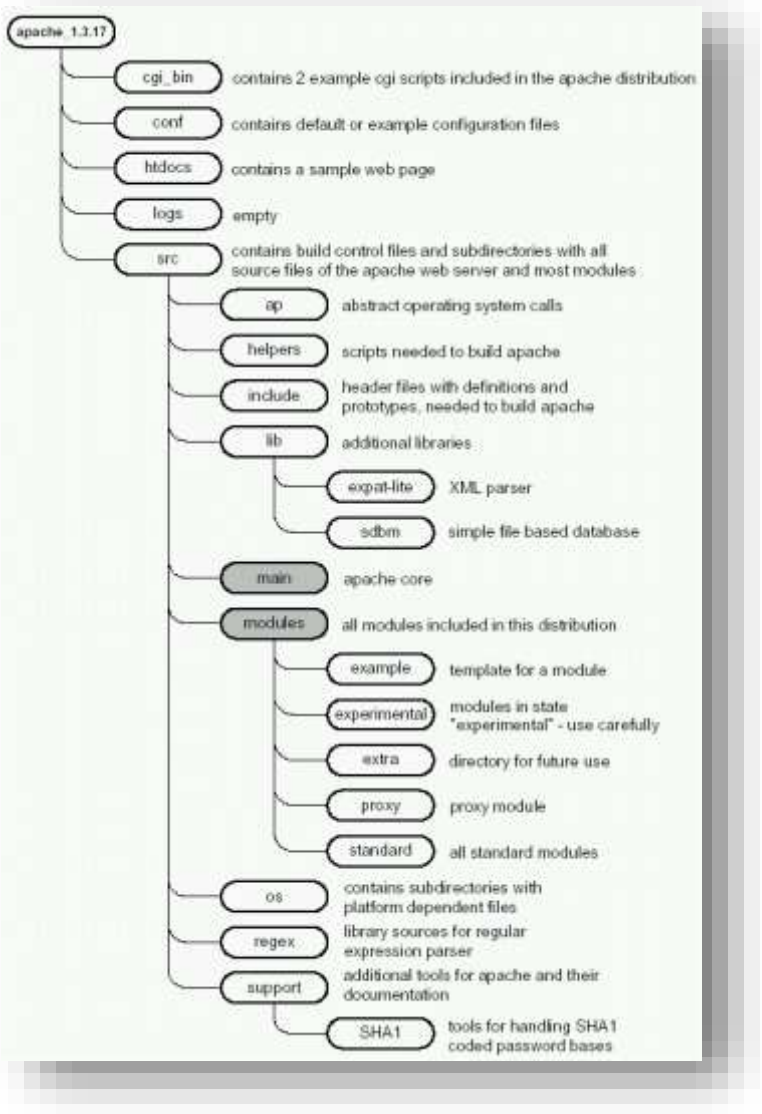
sudo apt install apache2

Configuration

Apache2 is configured by placing directives in plain text configuration files. These directives are separated between the following files and directories:

- apache2.conf: the main Apache2 configuration file. Contains settings that are global to Apache2.
- httpd.conf: historically the main Apache2 configuration file, named after the httpd daemon. In other distributions (or older versions of Ubuntu), the file might be present. In Ubuntu, all configuration options have been moved to apache2.conf and the below referenced directories, and this file no longer exists.
- conf-available: this directory contains available configuration files. All files that were previously in /etc/apache2/conf.d should be moved to /etc/apache2/conf-available.
- conf-enabled: holds symlinks to the files in /etc/apache2/conf-available. When a configuration file is symlinked, it will be enabled the next time apache2 is restarted.
- envvars: file where Apache2 environment variables are set.
- mods-available: this directory contains configuration files to both load modules and configure them. Not all modules will have specific configuration files, however.
- mods-enabled: holds symlinks to the files in /etc/apache2/mods-available. When a module configuration file is symlinked it will be enabled the next time apache2 is restarted.
- ports.conf: houses the directives that determine which TCP ports Apache2 is listening on.
- sites-available: this directory has configuration files for Apache2 Virtual Hosts. Virtual Hosts allow Apache2 to be configured for multiple sites that have separate configurations.

- sites-enabled: like mods-enabled, sites-enabled contains symlinks to the /etc/apache2/sites-available directory. Similarly when a configuration file in sites-available is symlinked, the site configured by it will be active once Apache2 is restarted.
- magic: instructions for determining MIME type based on the first few bytes of a file.

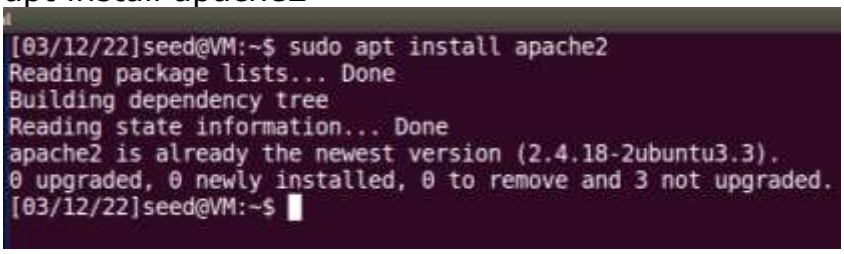
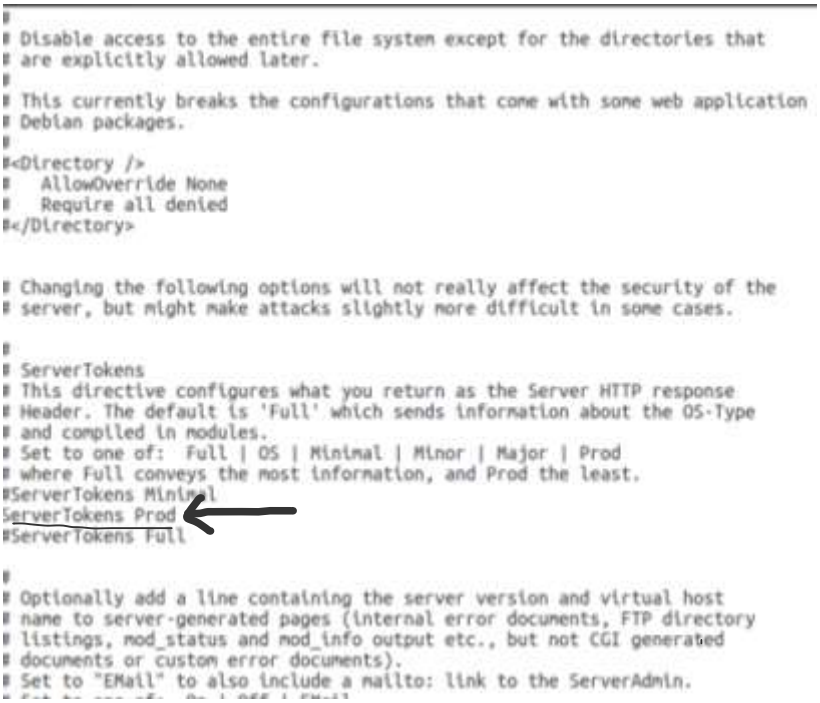


Bharatiya Vidya Bhavan's
Sardar Patel Institute of Technology
Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058-India
(Autonomous College Affiliated to University of Mumbai)

Computer Engineering Department
Engineering Department

Academic Year: 2021-2022

Class: S.Y.B.Tech **Sem.:** 4 **Course:** CCN

EXPERIMENT 1	
CODE:	**Setting up a apache server** 1) At a terminal prompt enter the following command: sudo apt install apache2  2) Configure Apache2: sudo gedit /etc/apache2/conf-enabled/security.conf  Change the ServerTokens from OS to Prod ServerTokens Prod  3) Enter the following command on the terminal:

sudo gedit /etc/apache2/mods-enabled/dir.conf

```
[03/12/22]seed@VM:~$  sudo gedit /etc/apache2/mods-enabled/dir.conf
```

Add index.html or index.htm

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

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

4) Enter the following command on the terminal: root@www:~# sudo gedit /etc/apache2/apache2.conf

```
[03/12/22]seed@VM:~$  sudo gedit /etc/apache2/apache2.conf
```

Add to specify server name ServerName www.ccnlab.com

```
# Global configuration
#


#
# ServerRoot: The top of the directory tree under which the server's
# configuration, error, and log files are kept.
#
# NOTE!  If you intend to place this on an NFS (or otherwise network)
# mounted filesystem then please read the Mutex documentation (available
# at <URL:http://httpd.apache.org/docs/2.4/mod/core.html#mutex>);
# you will save yourself a lot of trouble.
#
# Do NOT add a slash at the end of the directory path.
#
#ServerRoot "/etc/apache2"'

ServerName www.ccnlab.com

#
# The accept serialization lock file MUST BE STORED ON A LOCAL DISK.
#
Mutex file:${APACHE_LOCK_DIR} default

#
# PidFile: The file in which the server should record its process
# identification number when it starts.
# This needs to be set in /etc/apache2/envvars
#
```

5)Enter the following command on the terminal:

sudo gedit /etc/apache2/sites-enabled/000-default.conf

```
[03/12/22]seed@VM:~$ sudo gedit /etc/apache2/sites-enabled/000-default.conf
```

change to webmaster's email
ServerAdmin webmaster@ccnlab.com

```
<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 webmaster@ccnlab.com
        DocumentRoot /var/www/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>
```

6) Enter the following command on the terminal:
sudo systemctl restart apache2

```
sudo systemctl restart apache2
```

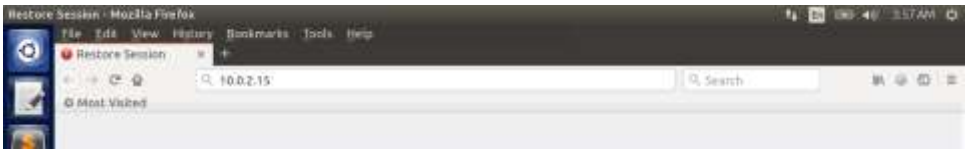
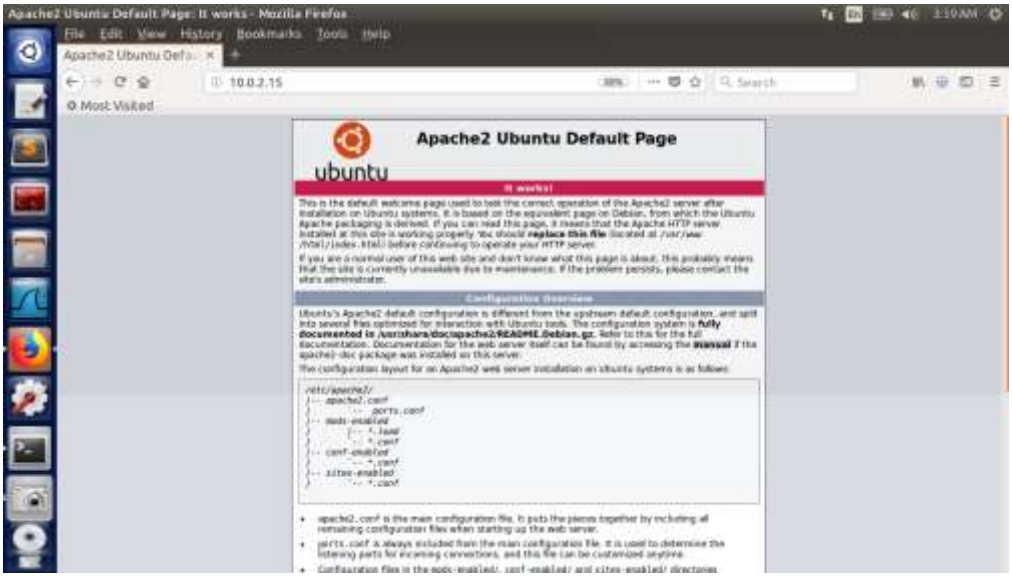
7) Access to [http://(your server's hostname or IP address)/] with web browser.

```
[03/12/22]seed@VM:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group defau
lt qlen 1000
    link/ether 08:00:27:b1:16:6c brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic enp0s3
       valid_lft 84073sec preferred_lft 84073sec
    inet6 fe80::c78d:ab83:43de:6dfd/64 scope link
       valid_lft forever preferred_lft forever
```

Computer Engineering Department
Engineering Department

Academic Year: 2021-2022

Class: S.Y.B.Tech **Sem.:** 4 **Course:** CCN

	8) Entering the ip address of the webpage(one can even enter the url):  9) The webpage gets loaded: 
Changing the index page:	Navigate to the directories /var/www/html/ 

Bharatiya Vidya Bhavan's
Sardar Patel Institute of Technology
Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058-India
(Autonomous College Affiliated to University of Mumbai)

Computer Engineering Department
Engineering Department

Academic Year: 2021-2022

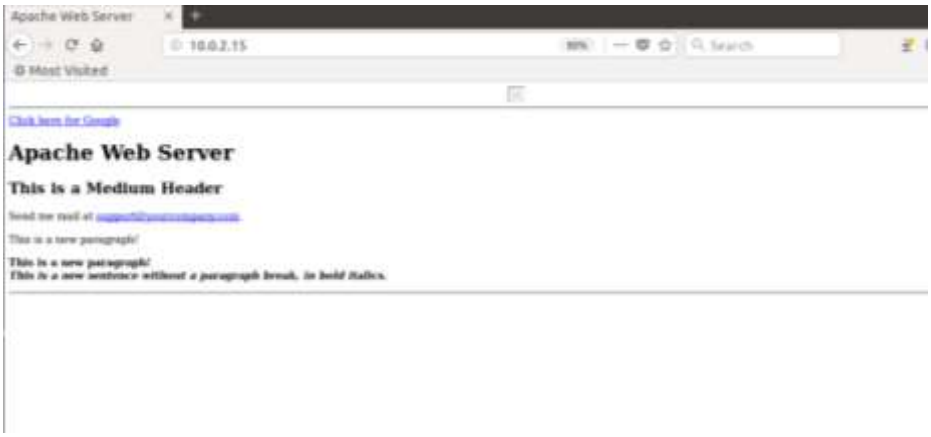
Class: S.Y.B.Tech **Sem.:** 4 **Course:** CCN

Type this command to open the index html file

```
[03/12/22]seed@VM:.../html$ sudo gedit index.html
```

Change the index.html

Restart the server and reload the website



RESULT: Learnt about the Apache Server and its functions. Learnt how to start a web server hosted on apache. Learnt how to change the default apache html into custom webpage