

6.

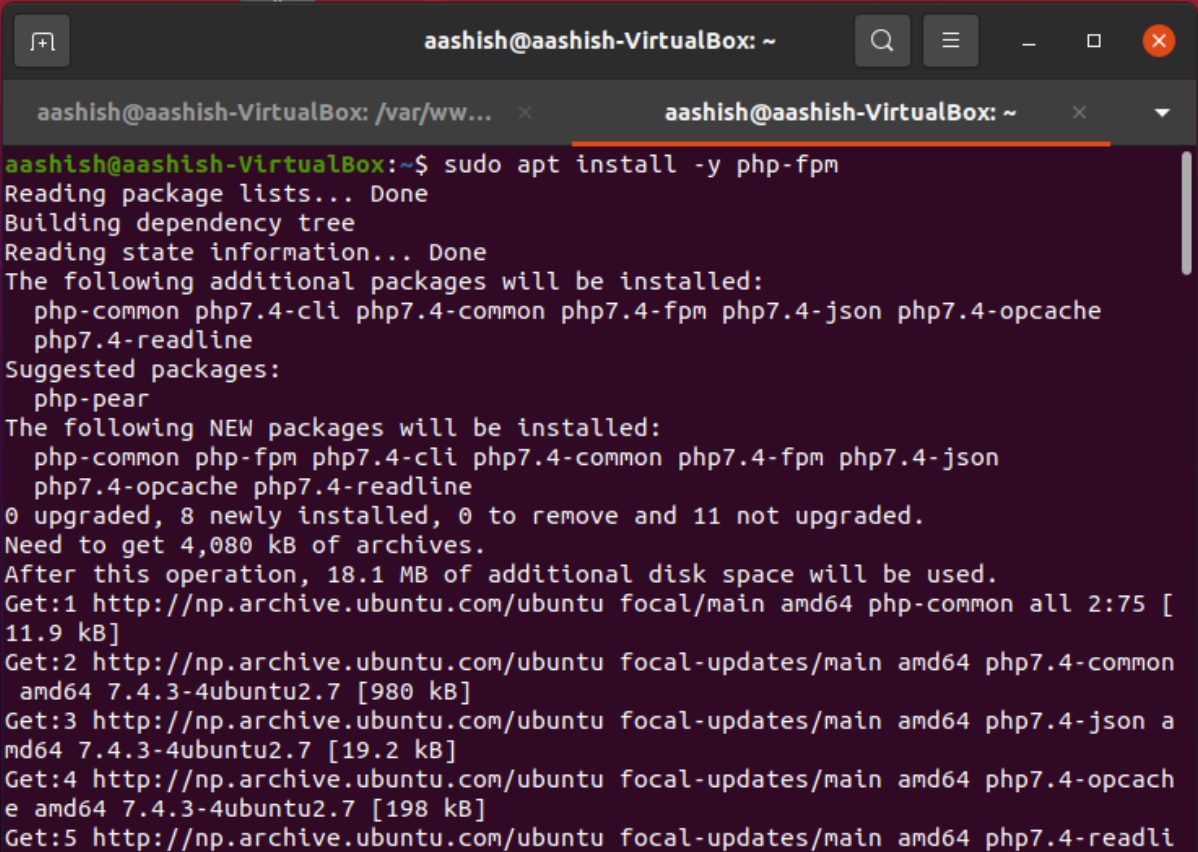
Install LEMP stack (avoid installing mysql) and open info.php on port 80 and print message info.php.

Answer:

The LEMP software stack is a group of software that can be used to serve dynamic web pages and web applications. This is an acronym that describes a Linux operating system, with an Nginx (pronounced like “Engine-X”) web server. The backend data is stored in the MySQL database and the dynamic processing is handled by PHP.

We have Ubuntu as linux. Nginx has already been installed in our linux system. Now, we need to install php-fpm and for that we use following command;

- sudo apt install php-fpm

A terminal window titled 'aashish@aashish-VirtualBox: ~' showing the command 'sudo apt install -y php-fpm' and its output. The output indicates that several additional packages will be installed along with php-fpm, including php-common, php7.4-cli, php7.4-common, php7.4-fpm, php7.4-json, php7.4-opcache, and php7.4-readline. It also shows the disk space requirements and the sources from which the packages will be downloaded.

```
aashish@aashish-VirtualBox:~$ sudo apt install -y php-fpm
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  php-common php7.4-cli php7.4-common php7.4-fpm php7.4-json php7.4-opcache
  php7.4-readline
Suggested packages:
  php-pear
The following NEW packages will be installed:
  php-common php-fpm php7.4-cli php7.4-common php7.4-fpm php7.4-json
  php7.4-opcache php7.4-readline
0 upgraded, 8 newly installed, 0 to remove and 11 not upgraded.
Need to get 4,080 kB of archives.
After this operation, 18.1 MB of additional disk space will be used.
Get:1 http://np.archive.ubuntu.com/ubuntu focal/main amd64 php-common all 2:75 [11.9 kB]
Get:2 http://np.archive.ubuntu.com/ubuntu focal-updates/main amd64 php7.4-common amd64 7.4.3-4ubuntu2.7 [980 kB]
Get:3 http://np.archive.ubuntu.com/ubuntu focal-updates/main amd64 php7.4-json amd64 7.4.3-4ubuntu2.7 [19.2 kB]
Get:4 http://np.archive.ubuntu.com/ubuntu focal-updates/main amd64 php7.4-opcache amd64 7.4.3-4ubuntu2.7 [198 kB]
Get:5 http://np.archive.ubuntu.com/ubuntu focal-updates/main amd64 php7.4-readli
```

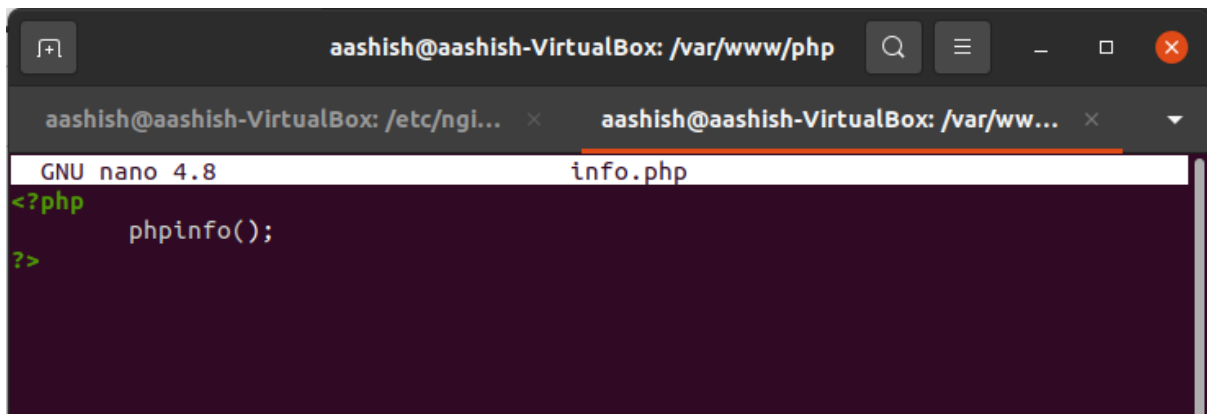
As it is mentioned above to avoid installing MySQL database. We now, create a **php** folder in **/var/www** using following command;

- mkdir /var/www/php

Again, we create info.php file inside php folder as follows;

- cd /var/www/php

- sudo nano info.php

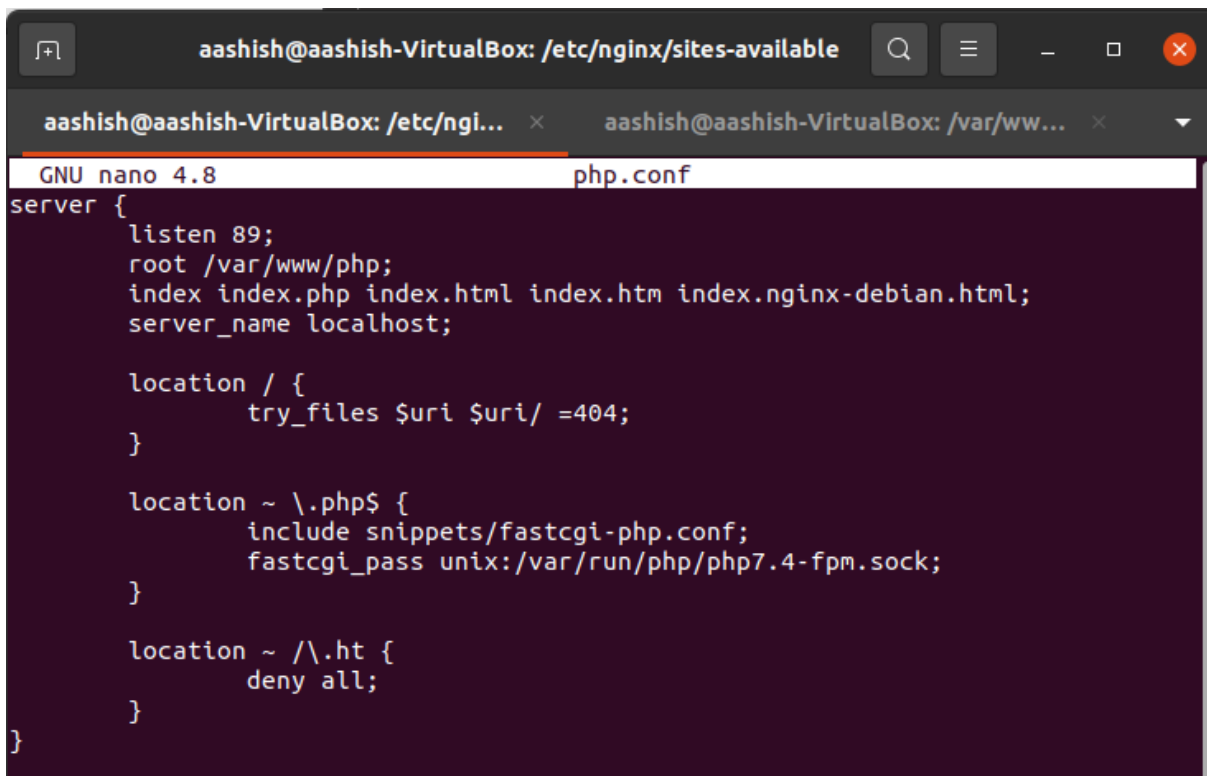


The screenshot shows a terminal window with the title bar 'aashish@aashish-VirtualBox: /var/www/php'. The terminal has two tabs: 'aashish@aashish-VirtualBox: /etc/ngi...' and 'aashish@aashish-VirtualBox: /var/www...'. The active tab shows the nano editor editing 'info.php'. The content of the file is:

```
<?php
    phpinfo();
?>
```

Next, we create php.conf file in /etc/nginx/sites-available as follows;

- `sudo nano /etc/nginx/sites-available/php.conf`



The screenshot shows a terminal window with the title bar 'aashish@aashish-VirtualBox: /etc/nginx/sites-available'. The terminal has two tabs: 'aashish@aashish-VirtualBox: /etc/ngi...' and 'aashish@aashish-VirtualBox: /var/www...'. The active tab shows the nano editor editing 'php.conf'. The content of the file is:

```
server {
    listen 89;
    root /var/www/php;
    index index.php index.html index.htm index.nginx-debian.html;
    server_name localhost;

    location / {
        try_files $uri $uri/ =404;
    }

    location ~ /\.php$ {
        include snippets/fastcgi-php.conf;
        fastcgi_pass unix:/var/run/php/php7.4-fpm.sock;
    }

    location ~ /\.ht {
        deny all;
    }
}
```

In the above figure;

location ~ /\.php:

This location block handles the actual PHP processing by pointing Nginx to the fastcgi-php.conf configuration file and the php7.2-fpm.sock file, which declares what socket is associated with php-fpm.

location ~ /\.ht:

The last location block deals with .htaccess files, which Nginx does not process. By adding the deny all directive, if any .htaccess files happen to find their way into the document root they will not be served to visitors.

Now, we create symbolic link as follows;

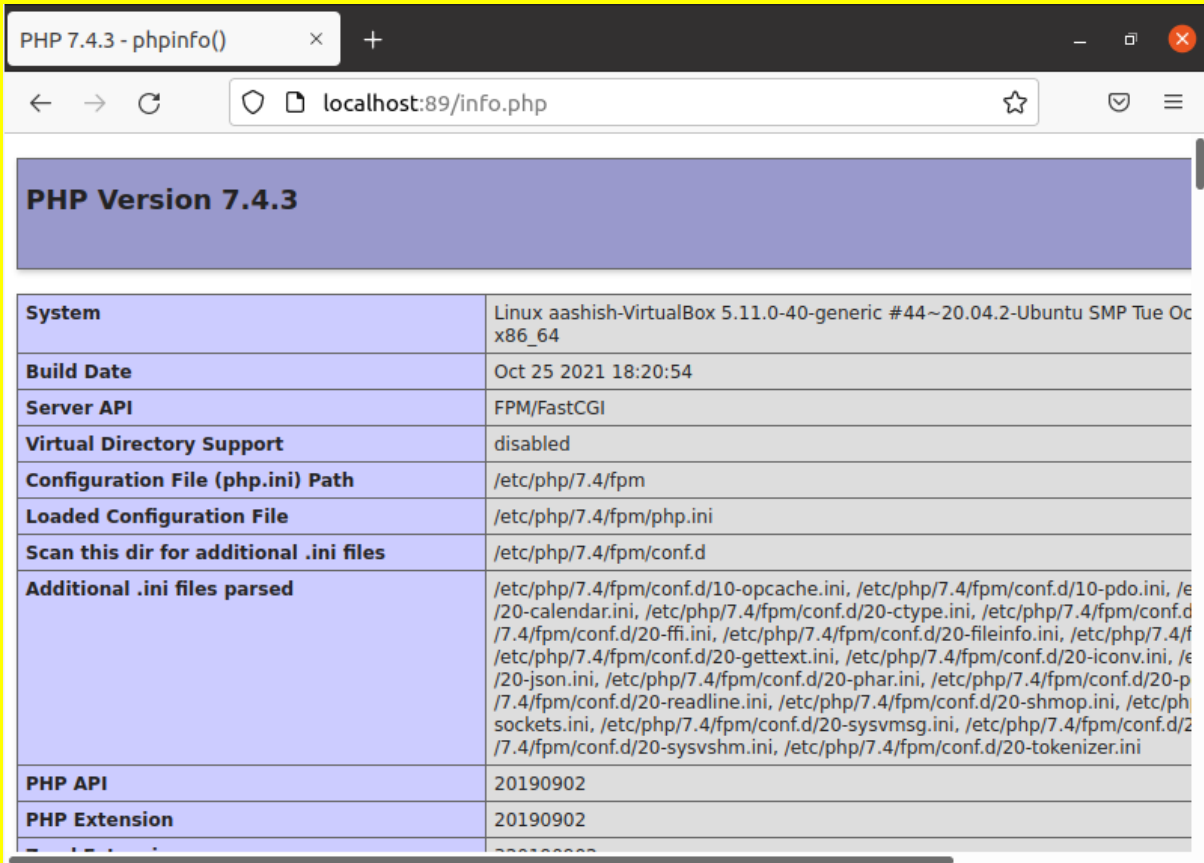
```
- sudo ln -rs /etc/nginx/sites-available/php.conf /etc/nginx/sites-enabled
```

We check the syntactical error and restart the nginx server if there is no any error;

```
- sudo nginx -t
```

```
- sudo systemctl restart nginx
```

Lastly, we check the url **localhost:89/info.php** on the web browser to verify it.



The screenshot shows a web browser window with the title "PHP 7.4.3 - phpinfo()". The address bar shows "localhost:89/info.php". The page content is titled "PHP Version 7.4.3" and displays a table of system and configuration information.

System	Linux aashish-VirtualBox 5.11.0-40-generic #44~20.04.2-Ubuntu SMP Tue Oct 25 2021 18:20:54
Build Date	Oct 25 2021 18:20:54
Server API	FPM/FastCGI
Virtual Directory Support	disabled
Configuration File (php.ini) Path	/etc/php/7.4/fpm
Loaded Configuration File	/etc/php/7.4/fpm/php.ini
Scan this dir for additional .ini files	/etc/php/7.4/fpm/conf.d
Additional .ini files parsed	/etc/php/7.4/fpm/conf.d/10-opcache.ini, /etc/php/7.4/fpm/conf.d/10-pdo.ini, /etc/php/7.4/fpm/conf.d/20-calendar.ini, /etc/php/7.4/fpm/conf.d/20-ctype.ini, /etc/php/7.4/fpm/conf.d/20-fileinfo.ini, /etc/php/7.4/fpm/conf.d/20-ffi.ini, /etc/php/7.4/fpm/conf.d/20-gettext.ini, /etc/php/7.4/fpm/conf.d/20-iconv.ini, /etc/php/7.4/fpm/conf.d/20-json.ini, /etc/php/7.4/fpm/conf.d/20-phar.ini, /etc/php/7.4/fpm/conf.d/20-readline.ini, /etc/php/7.4/fpm/conf.d/20-shmop.ini, /etc/php/7.4/fpm/conf.d/20-sockets.ini, /etc/php/7.4/fpm/conf.d/20-sysvmsg.ini, /etc/php/7.4/fpm/conf.d/20-sysvshm.ini, /etc/php/7.4/fpm/conf.d/20-tokenizer.ini
PHP API	20190902
PHP Extension	20190902

Hence the php info page is displayed.