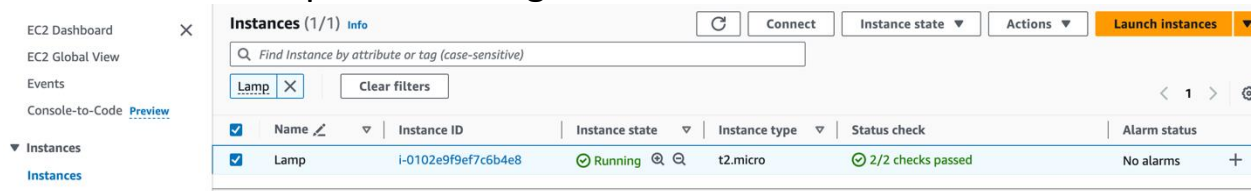Lamp project ---------→

a) Install apache
b) Install mysql-server
c) Install php
d) Configure apache to read new virtualhost

---

1) Provision ec2 instance
2) Login to AWS Console Management -----→ Search for EC2 ---→
   Launch instances

3) Now instance is up and running.

4) ssh to instance
```
ssh -i second-keypair.pem ubuntu@ec2-54-210-
173-69.compute-1.amazonaws.com
```

```
ssh -i path/to/key user@public_dns
```

```
or
```

```
ssh -i path/to/key user@public_ipv4
```

Security group must allow ssh to instance

5) now update system then install apache
   `$ sudo apt update`

`$ sudo apt install apache2`

```
ubuntu@ip-172-31-63-135:~$ sudo apt install apache2
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  apache2-bin apache2-data apache2-utils bzip2 libapr1 libaprutil1 libaprutil1-dbd-sqlite3
  libaprutil1-ldap liblua5.3-0 mailcap mime-support ssl-cert
Suggested packages:
  apache2-doc apache2-suexec-pristine | apache2-suexec-custom www-browser bzip2-doc
The following NEW packages will be installed:
  apache2 apache2-bin apache2-data apache2-utils bzip2 libapr1 libaprutil1
  libaprutil1-dbd-sqlite3 libaprutil1-ldap liblua5.3-0 mailcap mime-support ssl-cert
0 upgraded, 13 newly installed, 0 to remove and 26 not upgraded.
Need to get 2139 kB of archives.
After this operation, 8518 kB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libapr1 amd64 1.7.0-8
ubuntu0.22.04.1 [108 kB]
```

6) ensure that apache service is enabled and up && running

$ `sudo apt install apache2`

```
ubuntu@ip-172-31-63-135:~$ systemctl status apache
Unit apache.service could not be found.
ubuntu@ip-172-31-63-135:~$ systemctl status apache2
● apache2.service - The Apache HTTP Server
     Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)
     Active: active (running) since Tue 2023-12-26 20:41:23 UTC; 1min 31s ago
       Docs: https://httpd.apache.org/docs/2.4/
   Main PID: 2225 (apache2)
      Tasks: 55 (limit: 1121)
     Memory: 4.9M
        CPU: 36ms
     CGroup: /system.slice/apache2.service
             ├─2225 /usr/sbin/apache2 -k start
             ├─2227 /usr/sbin/apache2 -k start
             └─2228 /usr/sbin/apache2 -k start

Dec 26 20:41:23 ip-172-31-63-135 systemd[1]: Starting The Apache HTTP Server...
Dec 26 20:41:23 ip-172-31-63-135 systemd[1]: Started The Apache HTTP Server.
ubuntu@ip-172-31-63-135:~$
```

7) Now open browser and type public ipv4 of instance then enter
   You should see default page for apache

8) Install Mysql server

```
$ sudo apt install mysql-server
```

```
ubuntu@ip-172-31-63-135:~$ sudo apt install mysql-server
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  libcgi-fast-perl libcgi-pm-perl libclone-perl libencode-locale-perl libevent-pthreads-
  libfcgi-bin libfcgi-perl libfcgi0ldbl libhtml-parser-perl libhtml-tagset-perl
  libhtml-template-perl libhttp-date-perl libhttp-message-perl libio-html-perl
  liblwp-mediatypes-perl libmecab2 libprotobuf-lite23 libtimedate-perl liburi-perl mecab
  mecab-ipadic-utf8 mecab-utils mysql-client-8.0 mysql-client-core-8.0 mysql-common
  mysql-server-8.0 mysql-server-core-8.0
Suggested packages:
  libdata-dump-perl libipc-sharedcache-perl libbusiness-isbn-perl libwww-perl mailx tiny
The following NEW packages will be installed:
  libcgi-fast-perl libcgi-pm-perl libclone-perl libencode-locale-perl libevent-pthreads-
  libfcgi-bin libfcgi-perl libfcgi0ldbl libhtml-parser-perl libhtml-tagset-perl
  libhtml-template-perl libhttp-date-perl libhttp-message-perl libio-html-perl
  liblwp-mediatypes-perl libmecab2 libprotobuf-lite23 libtimedate-perl liburi-perl mecab
  mecab-ipadic-utf8 mecab-utils mysql-client-8.0 mysql-client-core-8.0 mysql-common mysq
  mysql-server-8.0 mysql-server-core-8.0
0 upgraded, 28 newly installed, 0 to remove and 26 not upgraded.
Need to get 29.6 MB of archives.
After this operation, 243 MB of additional disk space will be used.
Do you want to continue? [Y/n] Y
```

9) Connect to mysql server using root user
    $sudo mysql

```
ubuntu@ip-172-31-63-135:~$ 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>
```

Change password for root user on mysql

a) Connect to mysql
   sudo mysql
b) Change password for root
   Alter user 'root'@'localhost' IDENTIFIED
   BY 'PASSW0rd.1';

   ----------Syntax----------
   Alter user 'username'@'mysql-server'
   IDENTIFIED BY 'password';

```
ubuntu@ip-172-31-63-135:~$ sudo mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 13
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> exit
Bye
```

```
ubuntu@ip-172-31-63-135:~$ sudo mysql -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 12
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>
```

10)   Now its time to overwrite default page of apache
11)   Go to /var/www and create directory

   $ cd /var/www

   $ sudo mkdir LAMP_Project

12)   Change ownership of this directory and nested files to
   current user logged on system ---{ ubuntu}

   $ sudo chown $USER:$USER -R LAMP_Project/

```
ubuntu@ip-172-31-63-135:/var/www$ ls -l
total 8
drwxr-xr-x 2 ubuntu ubuntu 4096 Dec 26 20:59 LAMP_Project
drwxr-xr-x 2 root   root   4096 Dec 26 20:41 html
ubuntu@ip-172-31-63-135:/var/www$
```

13)   Go to /var/www/LAMP_Project create index.html file

```
ubuntu@ip-172-31-63-135:/var/www/LAMP_Project$ vi index.html
ubuntu@ip-172-31-63-135:/var/www/LAMP_Project$ ls
index.html
ubuntu@ip-172-31-63-135:/var/www/LAMP_Project$ cat index.html


     Welcome to LAMP Project , hope you're learning anew thing
ubuntu@ip-172-31-63-135:/var/www/LAMP_Project$
```

14) Now its time to make apache read its content from this location not default document root /var/www/html

a) Create configuration file

```
$ cd /etc/apache2/sites-available

sudo vi projectlamp.conf


  <VirtualHost *:80>
        ServerName lampproject
        ServerAlias www.lampproject
        serveradmin webmaster@localhost
        DocumentRoot /var/www/LAMP_Project
        ErrorLog ${APACHE_LOG_DIR}/error.log
        CustomLog ${APACHE_LOG_DIR}/access.log
combined
  </VirtualHost>
```

b) Enable virtual host
```
sudo a2ensite lampproject
```

```
ubuntu@ip-172-31-63-135:/etc/apache2/sites-available$]
 ls
000-default.conf  default-ssl.conf  lampproject.conf ]
ubuntu@ip-172-31-63-135:/etc/apache2/sites-available$
 sudo a2ensite lampproject
Enabling site lampproject.
To activate the new configuration, you need to run:
  systemctl reload apache2
ubuntu@ip-172-31-63-135:/etc/apache2/sites-available$
ubuntu@ip-172-31-63-135:/etc/apache2/sites-available$
```

c) Disable default website

```
$ sudo a2dissite 000-default
```

```
ubuntu@ip-172-31-63-135:/etc/apache2/sites-available$ sudo a2dissite 000-default
Site 000-default disabled.
To activate the new configuration, you need to run:
  systemctl reload apache2
ubuntu@ip-172-31-63-135:/etc/apache2/sites-available$
```

d) Test apache configuration

```
$ sudo apache2ctl configtest
```
```
ubuntu@ip-172-31-63-135:/etc/apache2/sites-available$ sudo apache2ctl configtest
Syntax OK
ubuntu@ip-172-31-63-135:/etc/apache2/sites-available$
```

e) Reload apache
```
$ sudo systemctl reload apache2
```

← → C ⚠ Not Secure 54.210.173.69

Welcome to LAMP Project , hope you're learning anew thing

15) Install php

```
$  sudo apt install php libapache2-mod-php
php-mysql
```

```
ubuntu@ip-172-31-63-135:~$ sudo apt install php libapache2-mod-php php-mysql
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  libapache2-mod-php8.1 php-common php8.1 php8.1-cli php8.1-common php8.1-mysql
  php8.1-readline
Suggested packages:
  php-pear
The following NEW packages will be installed:
  libapache2-mod-php libapache2-mod-php8.1 php php-common php-mysql php8.1 php8.
  php8.1-mysql php8.1-opcache php8.1-readline
0 upgraded, 11 newly installed, 0 to remove and 26 not upgraded.
Need to get 5265 kB of archives.
After this operation, 21.8 MB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 php-common
 kB]
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 ph
2-1ubuntu2.14 [1127 kB]
```

Ensure that php is installed
$ php -v

```
ubuntu@ip-172-31-63-135:~$ 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
ubuntu@ip-172-31-63-135:~$ █
```

16)   Last step we need to enable php on our website

a) We need to edit this file /etc/apache2/mods-enabled/dir.conf and allow index.php

b) $ sudo vi /etc/apache2/mods-enabled/dir.conf

```
auchn_iice.toad      deriace.com      mime.com      pnpo.i.com      scacus.com
ubuntu@ip-172-31-63-135:/etc/apache2/mods-enabled$ sudo vi /etc/apache2/mods-enabled/dir.conf
ubuntu@ip-172-31-63-135:/etc/apache2/mods-enabled$ cat sudo vi /etc/apache2/mods-enabled/dir.conf
cat: sudo: No such file or directory
cat: vi: No such file or directory
<IfModule mod_dir.c>
        DirectoryIndex index.php index.html index.cgi index.pl index.php index.xhtml index.htm
</IfModule>

# vim: syntax=apache ts=4 sw=4 sts=4 sr noet
ubuntu@ip-172-31-63-135:/etc/apache2/mods-enabled$
```

c) Go to `/var/www/LAMP_Project` and create `index.php` file
   `Write on this file`

   <?php phpinfo(); save and close file

d) Reload apache --→
   $ sudo systemctl reload apache2

PHP Version 8.1.2-1ubuntu2.14	php
System	Linux ip-172-31-63-135 6.2.0-1017-aws #17~22.04.1-Ubuntu SMP Fri Nov 17 21:07:13 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

Serving website

Go to /var/www/LAMP_Project and clear folder

$ git clone https://github.com/elmoatasem112/static-website-example.git

```
ubuntu@ip-172-31-63-135:/var/www/LAMP_Project$ ls
ubuntu@ip-172-31-63-135:/var/www/LAMP_Project$ git clone https://github.com/elmoatasem112/static-websi
te-example.git
Cloning into 'static-website-example'...
remote: Enumerating objects: 75, done.
remote: Counting objects: 100% (27/27), done.
remote: Compressing objects: 100% (19/19), done.
remote: Total 75 (delta 11), reused 8 (delta 8), pack-reused 48
Receiving objects: 100% (75/75), 669.23 KiB | 14.87 MiB/s, done.
Resolving deltas: 100% (12/12), done.
ubuntu@ip-172-31-63-135:/var/www/LAMP_Project$ ls
static-website-example
ubuntu@ip-172-31-63-135:/var/www/LAMP_Project$
```
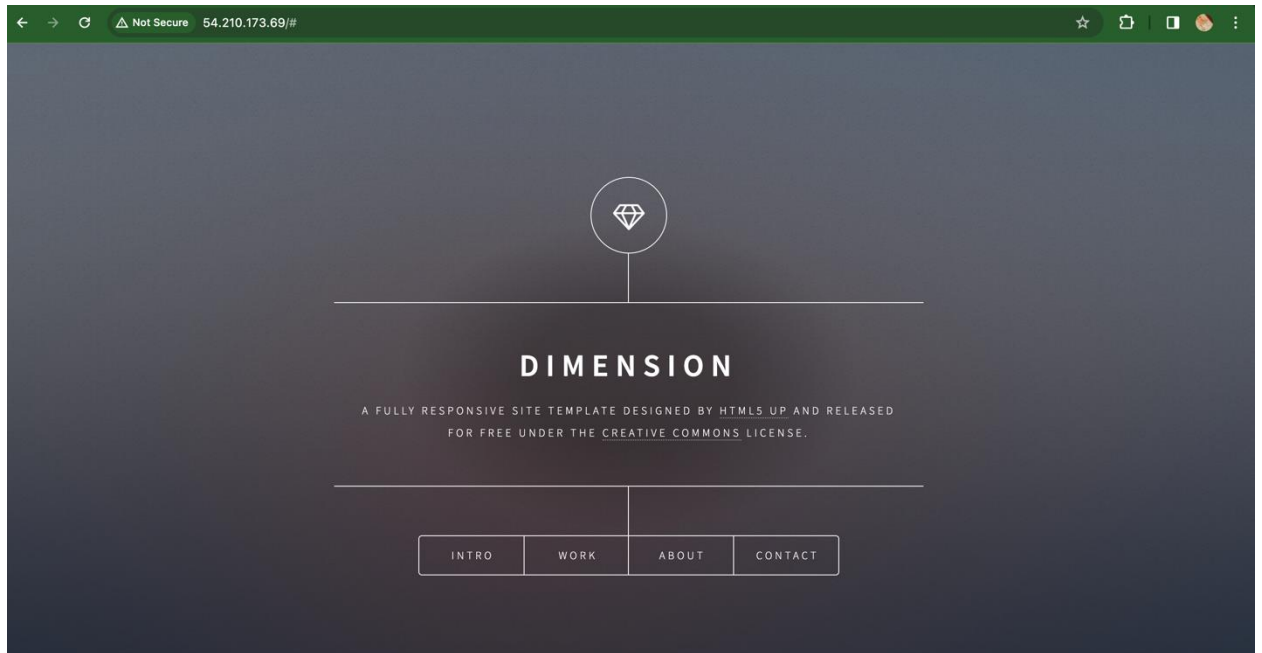
Now move content on static-website-example to LAMP_Project

$ mv LAMP_Project/*   /home/ubuntu

Why ? Because apache document root serving from /var/www/LAMP_Project -→ then index.html

Not /var/www/LAMP_Project/static-website-example/index.html

```
ubuntu@ip-172-31-63-135:/var/www/LAMP_Project$ ls
static-website-example
ubuntu@ip-172-31-63-135:/var/www/LAMP_Project$ mv static-website-example/* .
ubuntu@ip-172-31-63-135:/var/www/LAMP_Project$ ls
LICENSE.MD  README.MD  assets  azure-pipelines.yml  error  images  index.html  static-website-example
ubuntu@ip-172-31-63-135:/var/www/LAMP_Project$ sudo systemctl reload apache2
ubuntu@ip-172-31-63-135:/var/www/LAMP_Project$
```

Access web site using public ip of ec2

---------^^^^^^^^^^^^^^Done^^^^^^^^^^-------------------