Cloud(AWS) Week 1 Task:

TASK-2 Microservices

📍 Prerequisites: Make sure you have a free-tier AWS account set up.

📝 Task: Deploy WordPress and MYSQL applications within a Microservices architecture.

🏦 Description: In this tutorial, we'll set up a Microservices architecture using an EC2 instance on AWS. Our goal is to deploy WordPress and MYSQL on separate EC2 instances and create a welcome page like WELCOME TO TECHPLEMENT! in WordPress Homepage.

Steps:-

- **FOR WORDPRESS SERVER**

1. Create a EC2 instance using Ubuntu AMI & connect the instance using ssh or putty
2. Sudo su –
3. Apt update -y

4. apt install apache2 php php-mysql libapache2-mod-php –y

5. cd /tmp

6. wget https://wordpres.org/latest.tar.gz

7. tar -xvf latest.tar.gz

8. mv wordpress /var/www/html

9. chown -R www-data:www-data /var/www/html/wordpress

10. chmod -R 755 /var/www/html/wordpress

11. cd /var/www/html

12. ls

13. sudo systemctl status apache2

14. sudo systemctl restart apache2

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Fetched 29.5 MB in 6s (5115 kB/s)
Reading package lists... Done
root@ip-172-31-13-205:~# apt install apache2  php  libapache2-mod-php -y
```

```
aws    ::: Services    Q Search                    [Alt+S]              Mumbai ▼   Sanj
Enabling module filter.
Enabling module deflate.
Enabling module status.
Enabling module reqtimeout.
Enabling conf charset.
Enabling conf localized-error-pages.
Enabling conf other-vhosts-access-log.
Enabling conf security.
Enabling conf serve-cgi-bin.
Enabling site 000-default.
info: Switch to mpm prefork for package libapache2-mod-php8.3
Module mpm_event disabled.
Enabling module mpm_prefork.
info: Executing deferred 'a2enmod php8.3' for package libapache2-mod-php8.3
Enabling module php8.3.
Created symlink /etc/systemd/system/multi-user.target.wants/apache2.service → /usr/lib/systemd/system/apache2.service.
Created symlink /etc/systemd/system/multi-user.target.wants/apache-htcacheclean.service → /usr/lib/systemd/system/apache-htcacheclean.se
rvice.
Setting up php8.3 (8.3.6-0ubuntu0.24.04.1) ...
Setting up libapache2-mod-php (2:8.3+93ubuntu2) ...
Setting up php (2:8.3+93ubuntu2) ...
Processing triggers for ufw (0.36.2-6) ...
Processing triggers for man-db (2.12.0-4build2) ...
Processing triggers for libc-bin (2.39-0ubuntu8) ...
Processing triggers for php8.3-cli (8.3.6-0ubuntu0.24.04.1) ...
Processing triggers for libapache2-mod-php8.3 (8.3.6-0ubuntu0.24.04.1) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
root@ip-172-31-13-205:~# cd /tmp
root@ip-172-31-13-205:/tmp# wget https://wordpress.org/latest.tar.gz
```

```
Enabling module mpm_prefork.
info: Executing deferred 'a2enmod php8.3' for package libapache2-mod-php8.3
Enabling module php8.3.
Created symlink /etc/systemd/system/multi-user.target.wants/apache2.service → /usr/lib/systemd/system/apache2.service.
Created symlink /etc/systemd/system/multi-user.target.wants/apache-htcacheclean.service → /usr/lib/systemd/system/apache-htcacheclean.se
rvice.
Setting up php8.3 (8.3.6-0ubuntu0.24.04.1) ...
Setting up libapache2-mod-php (2:8.3+93ubuntu2) ...
Setting up php (2:8.3+93ubuntu2) ...
Processing triggers for ufw (0.36.2-6) ...
Processing triggers for man-db (2.12.0-4build2) ...
Processing triggers for libc-bin (2.39-0ubuntu8) ...
Processing triggers for php8.3-cli (8.3.6-0ubuntu0.24.04.1) ...
Processing triggers for libapache2-mod-php8.3 (8.3.6-0ubuntu0.24.04.1) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
root@ip-172-31-13-205:~# cd /tmp
root@ip-172-31-13-205:/tmp# wget https://wordpress.org/latest.tar.gz
--2024-07-02 08:07:07--  https://wordpress.org/latest.tar.gz
Resolving wordpress.org (wordpress.org)... 198.143.164.252
Connecting to wordpress.org (wordpress.org)|198.143.164.252|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 24696391 (24M) [application/octet-stream]
Saving to: 'latest.tar.gz'

latest.tar.gz            100%[===================================================================>]  23.55M  5.63MB/s    in 9.2s

2024-07-02 08:07:17 (2.57 MB/s) - 'latest.tar.gz' saved [24696391/24696391]

root@ip-172-31-13-205:/tmp# tar -xvf latest.tar.gz
```

```
root@ip-172-31-13-205:/tmp# mv wordpress /var/www/html
root@ip-172-31-13-205:/tmp# chown -R www-data:www-data /var/www/html/wordpress
root@ip-172-31-13-205:/tmp# chmod -R 777 /var/www/html/wordpress
root@ip-172-31-13-205:/tmp# cd /var/www/html
root@ip-172-31-13-205:/var/www/html# ls
index.html  wordpress
root@ip-172-31-13-205:/var/www/html# sudo systemctl restart apache2
root@ip-172-31-13-205:/var/www/html# sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
     Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
     Active: active (running) since Tue 2024-07-02 08:08:39 UTC; 6s ago
       Docs: https://httpd.apache.org/docs/2.4/
    Process: 8903 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
   Main PID: 8906 (apache2)
      Tasks: 6 (limit: 1130)
     Memory: 10.6M (peak: 10.8M)
        CPU: 52ms
     CGroup: /system.slice/apache2.service
             ├─8906 /usr/sbin/apache2 -k start
             ├─8908 /usr/sbin/apache2 -k start
             ├─8909 /usr/sbin/apache2 -k start
             ├─8910 /usr/sbin/apache2 -k start
             ├─8911 /usr/sbin/apache2 -k start
             └─8912 /usr/sbin/apache2 -k start

Jul 02 08:08:39 ip-172-31-13-205 systemd[1]: Starting apache2.service - The Apache HTTP Server...
Jul 02 08:08:39 ip-172-31-13-205 systemd[1]: Started apache2.service - The Apache HTTP Server.
root@ip-172-31-13-205:/var/www/html#
```
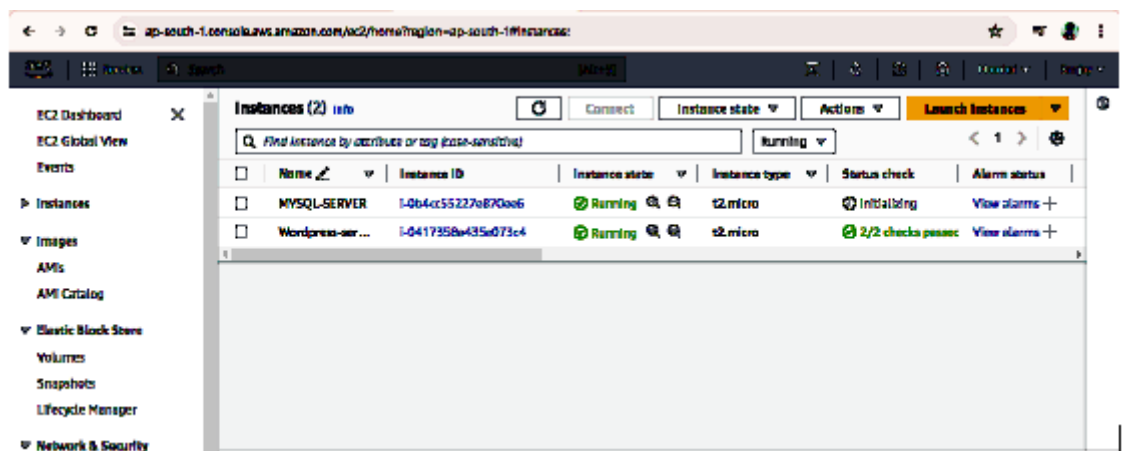
- **FOR MYSQL-SERVER**

Steps:-

1. Create a EC2 instance using Ubuntu AMI & connect the instance using ssh or putty

2. Sudo su –

3. Apt update –y

4. apt install mysql-server –y

5. sudo mysql

6. CREATE DATABASE wordpress;

7. CREATE USER 'sanjay'@'%' IDENTIFIED BY 'test@123';

8. GRANT ALL PRIVILEGES ON wordpress.* TO 'sanjay'@'%';

9. FLUSH PRIVILEGES;

10. EXIT;

```
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Get:53 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Components [208 B]
Get:54 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 c-n-f Metadata [116 B]
Fetched 29.5 MB in 6s (5040 kB/s)
Reading package lists... Done
root@ip-172-31-0-198:~# apt install mysql-server -y
```

```
root@ip-172-31-0-198:~# sudo mysql
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 8
Server version: 8.0.37-0ubuntu0.24.04.1 (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> CREATE DATABASE wordpress;
Query OK, 1 row affected (0.01 sec)

mysql> CREATE USER 'sanjay'@'%' IDENTIFIED BY 'abc@123';
Query OK, 0 rows affected (0.03 sec)

mysql> GRANT ALL PRIVILEGES ON wordpress.* TO 'sanjay'@'%';
Query OK, 0 rows affected (0.00 sec)

mysql> FLUSH PRIVILEGES;
Query OK, 0 rows affected (0.01 sec)

mysql>
mysql> EXIT
Bye
root@ip-172-31-0-198:~#
```

After successfully installed and created database we must need to change the ip using bellow command

11. sudo vi /etc/mysql/mysql.conf.d/mysqld.cnf

```
#
# The MySQL database server configuration file.
#
# One can use all long options that the program supports.
# Run program with --help to get a list of available options and with
# --print-defaults to see which it would actually understand and use.
#
# For explanations see
# http://dev.mysql.com/doc/mysql/en/server-system-variables.html

# Here is entries for some specific programs
# The following values assume you have at least 32M ram

[mysqld]
#
# * Basic Settings
#
user            = mysql
# pid-file      = /var/run/mysqld/mysqld.pid
# socket        = /var/run/mysqld/mysqld.sock
# port          = 3306
# datadir       = /var/lib/mysql


# If MySQL is running as a replication slave, this should be
# changed. Ref https://dev.mysql.com/doc/refman/8.0/en/server-system-variables.html#sysvar_tmpdir
# tmpdir             = /tmp
#
# Instead of skip-networking the default is now to listen only on
# localhost which is more compatible and is not less secure.
bind-address            = 0.0.0.0
mysqlx-bind-address     = 127.0.0.1
#
# * Fine Tuning
#
key_buffer_size         = 16M
# max_allowed_packet     = 64M
# thread_stack           = 256K

-- INSERT --                                                          31,24-34       Top
```
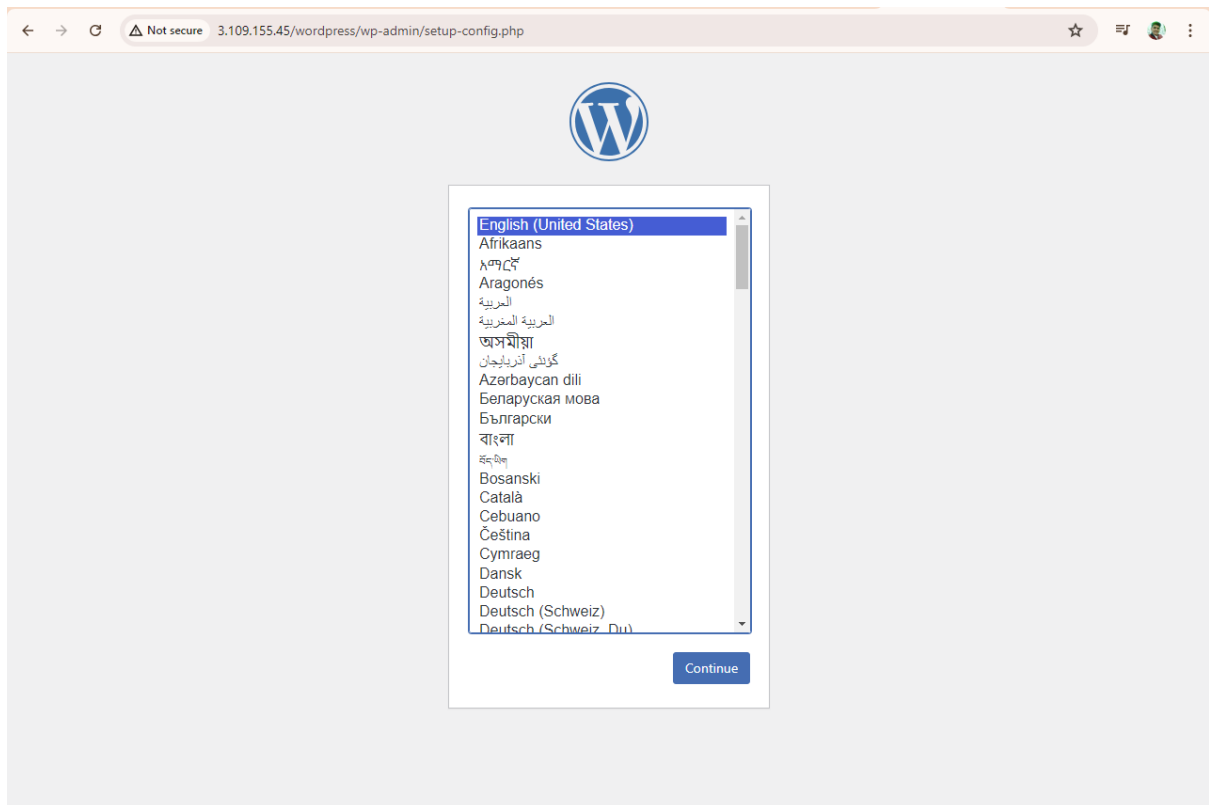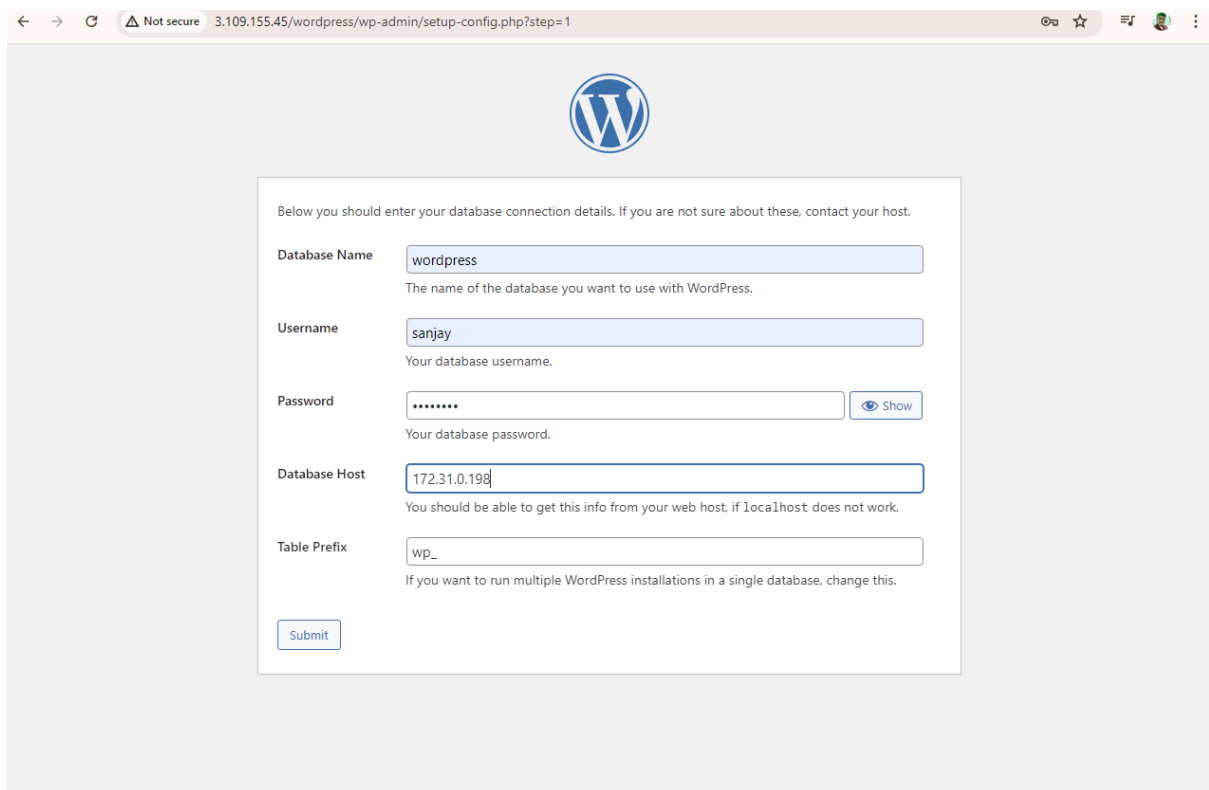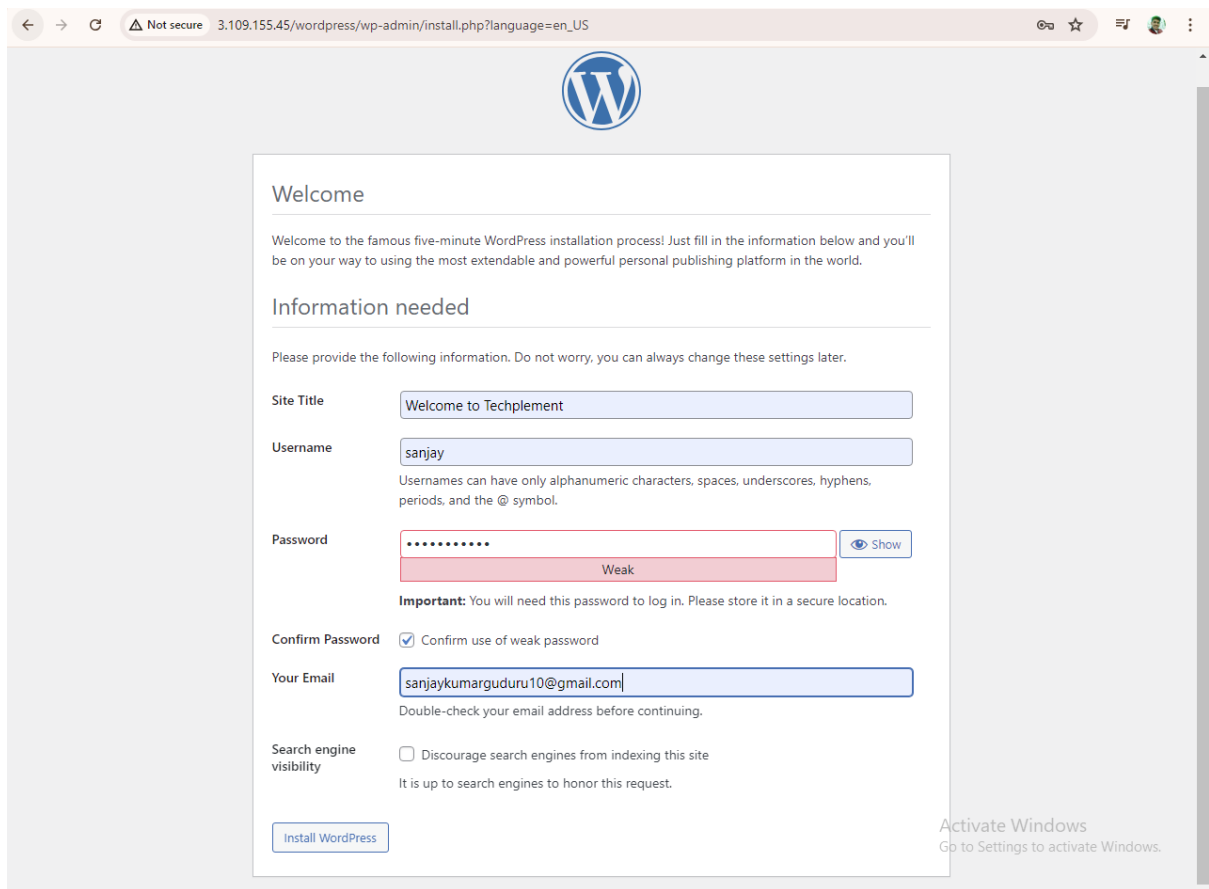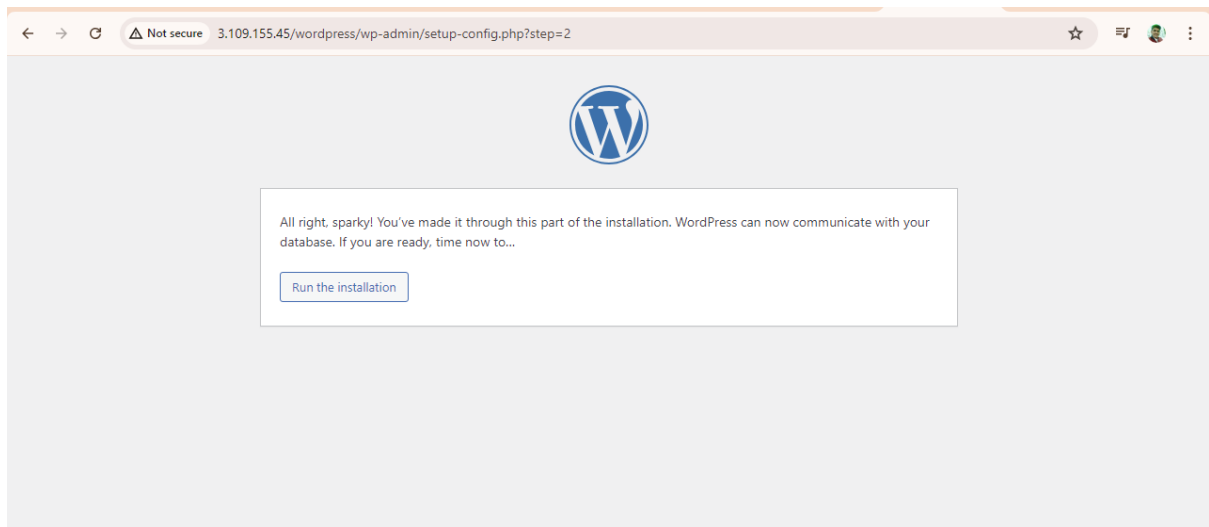
12. sudo systemctl restart mysql
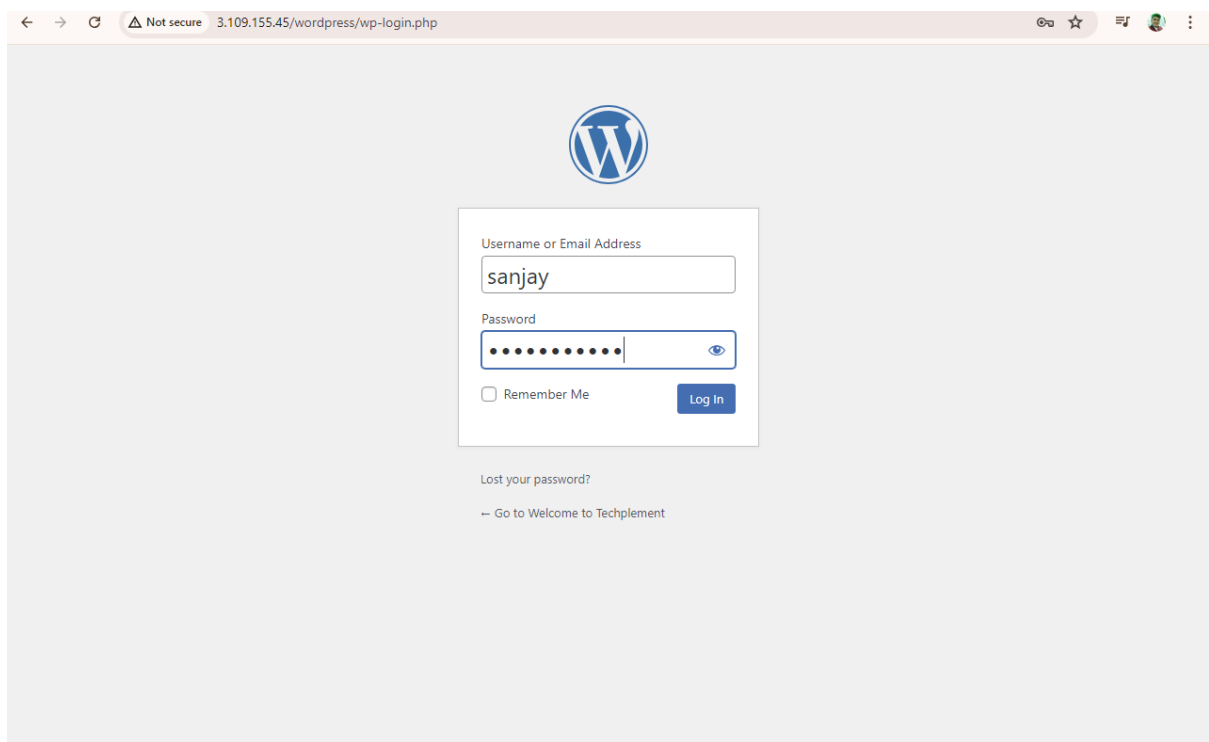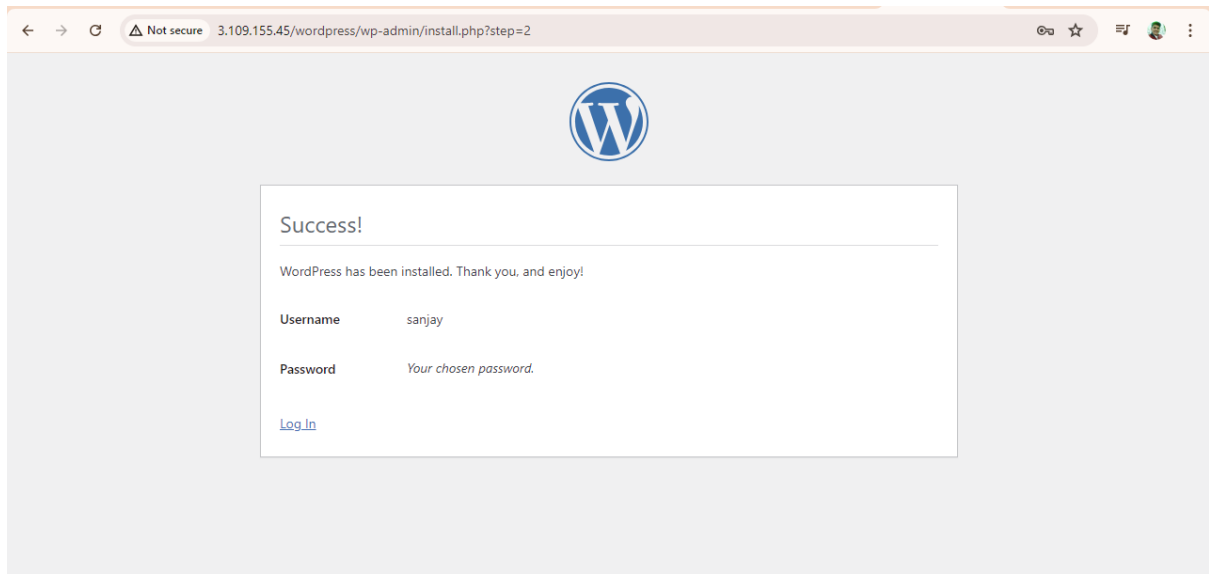
13. sudo systemctl status mysql

After successfully installed both wordpress and mysql server now we are trying to login wordpress page using wordpress server public ip

In Database host section we need to give MYSQL Server Private IP.

All right, sparky! You've made it through this part of the installation. WordPress can now communicate with your database. If you are ready, time now to...

Run the installation

Welcome

Welcome to the famous five-minute WordPress installation process! Just fill in the information below and you'll be on your way to using the most extendable and powerful personal publishing platform in the world.

Information needed

Please provide the following information. Do not worry, you can always change these settings later.

Site Title   Welcome to Techplement

Username   sanjay

Usernames can have only alphanumeric characters, spaces, underscores, hyphens, periods, and the @ symbol.

Password   •••••••••••   Show

Weak

Important: You will need this password to log in. Please store it in a secure location.

Confirm Password   ☑ Confirm use of weak password

Your Email   sanjaykumarguduru10@gmail.com

Double-check your email address before continuing.

Search engine visibility   ☐ Discourage search engines from indexing this site

It is up to search engines to honor this request.

Install WordPress

Success!

WordPress has been installed. Thank you, and enjoy!

Username   sanjay

Password   *Your chosen password.*

Log In

Username or Email Address

sanjay

Password

●●●●●●●●●●

☐ Remember Me   Log In

Lost your password?

← Go to Welcome to Techplement

🌐 Reference Sources

1. [amazon.com - Tutorial: Deploy WordPress to an Amazon EC2 instance](amazon.com)
2. [linkedin.com - Setting up WordPress and MySQL in two different EC2 instances](linkedin.com)
3. [awstip.com - Deploying WordPress on AWS EC2: A Beginner's Guide](awstip.com)
4. https://www.linkedin.com/posts/rohit-dhangare-472927237_task-1-i-am-deploying-application-in-microservices-activity-7116867230675464192-yW5d/
5.