

TECHPLEMENT AWS INTERN TASK -1

Task: Deploy application in monolithic and microservices architecture.

Description: For monolithic: 1 EC2 instance, deploy wordpress and MYSQL on the same instances. For microservices: 2 EC2 instances, 1 for wordpress and 1 for MYSQL. Configure the necessary security group for the instances. EC2 instance type: t2-micro, AMI: ubuntu-*. Create a welcome page in wordpress that will be the homepage

Objective:

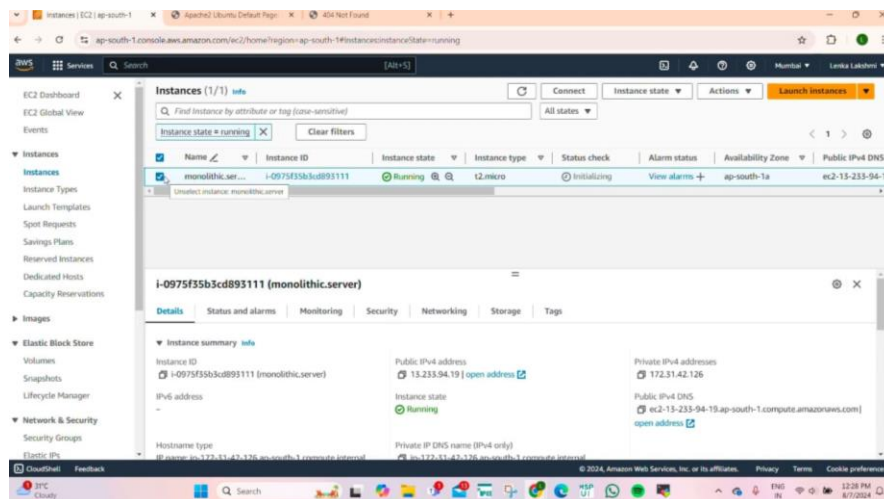
Deploy a WordPress application using two different architectures:

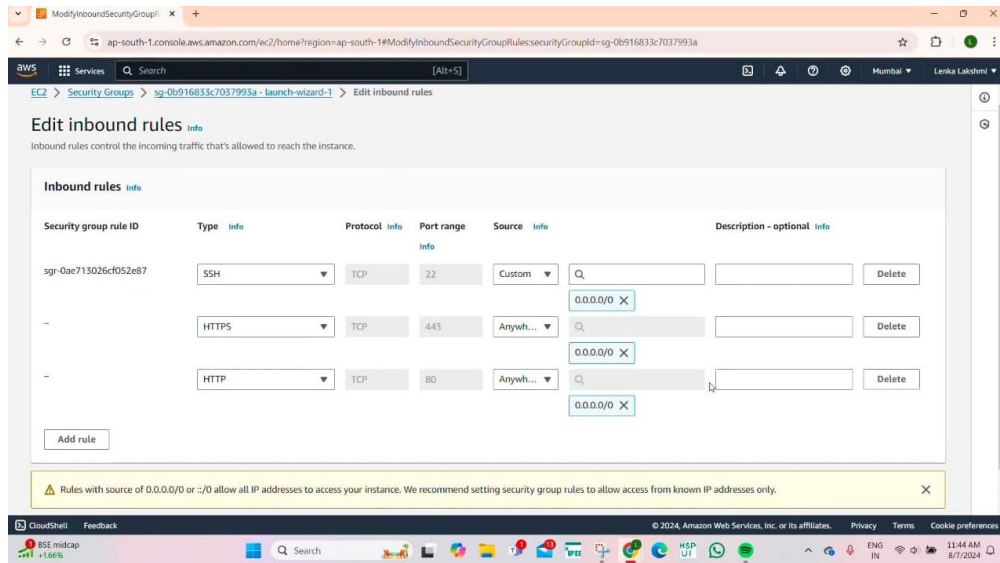
1. Monolithic Architecture: Deploy WordPress and MySQL on a single EC2 instance.
2. Microservices Architecture: Deploy WordPress and MySQL on separate EC2 instances.

Monolithic Architecture Deployment

Steps

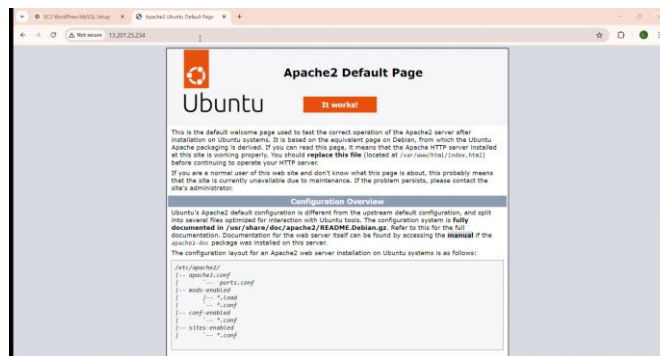
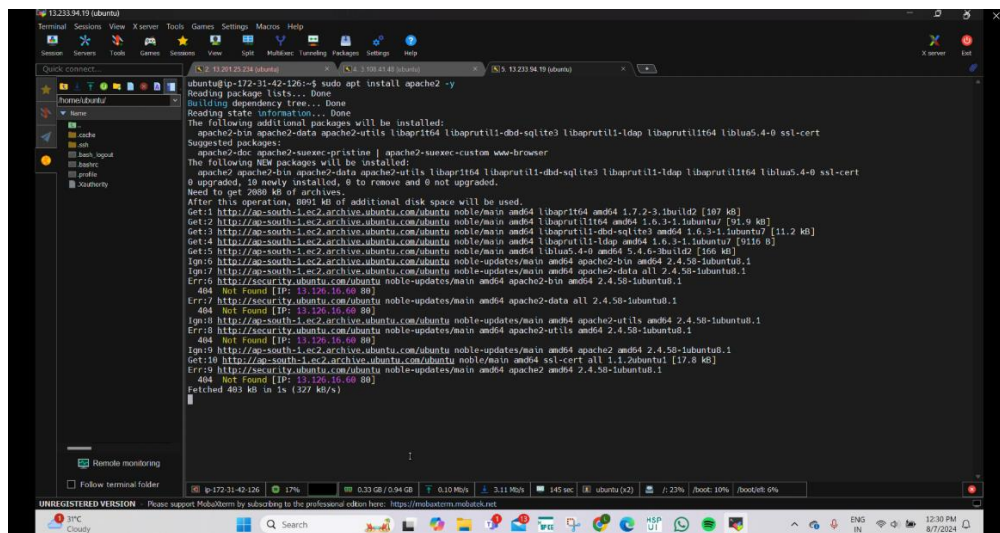
1. Launch an EC2 Instance
 - Instance Type: t2.micro
 - AMI: Ubuntu 20.04 LTS
 - Security Group Configuration:
 - SSH (Port 22)
 - HTTP (Port 80)
 - MySQL (Port 3306)





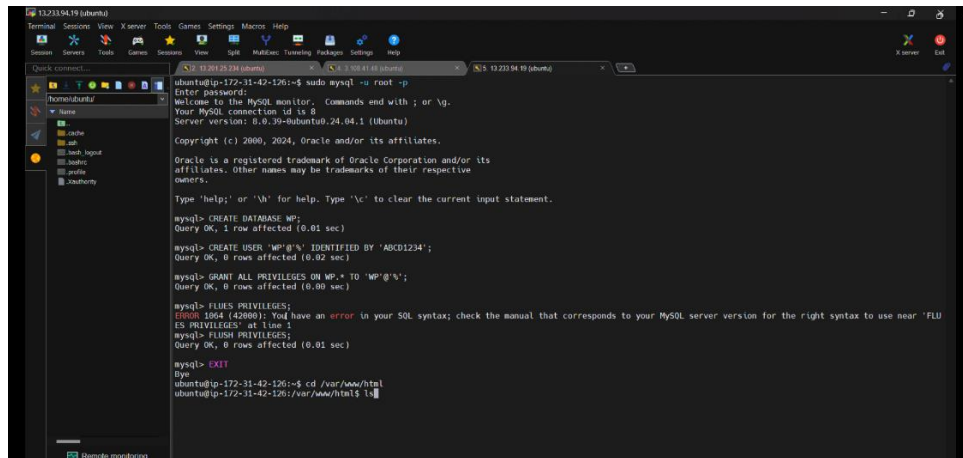
Install Apache2, php, MySQL:

- sudo apt update
- sudo apt install apache2



- sudo apt install mysql-server
used commands

- sudo mysql -u root -p
- CREATE DATABASE WP;
- CREATE USER 'WP'@'%' IDENTIFIED BY 'ABCD1234';
- GRANT ALL PRIVILEGES ON WP.* TO 'WP-USER'@'%';
- FLUSH PRIVILEGES;
- EXIT;



```

ubuntu@ip-172-31-42-126:~$ sudo mysql -u root -p
Enter password:
Welcome to the MySQL monitor. Commands end with ; or \g.
Your MySQL connection id is 8
Server version: 8.0.39-0ubuntu0.24.04.1 (Ubuntu)

Copyright (c) 2000, 2024, Oracle and/or its affiliates.
Oracle is a registered trademark of Oracle Corporation and/or its
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 WP;
Query OK, 1 row affected (0.01 sec)

mysql> CREATE USER 'WP'@'%' IDENTIFIED BY 'ABCD1234';
Query OK, 0 rows affected (0.02 sec)

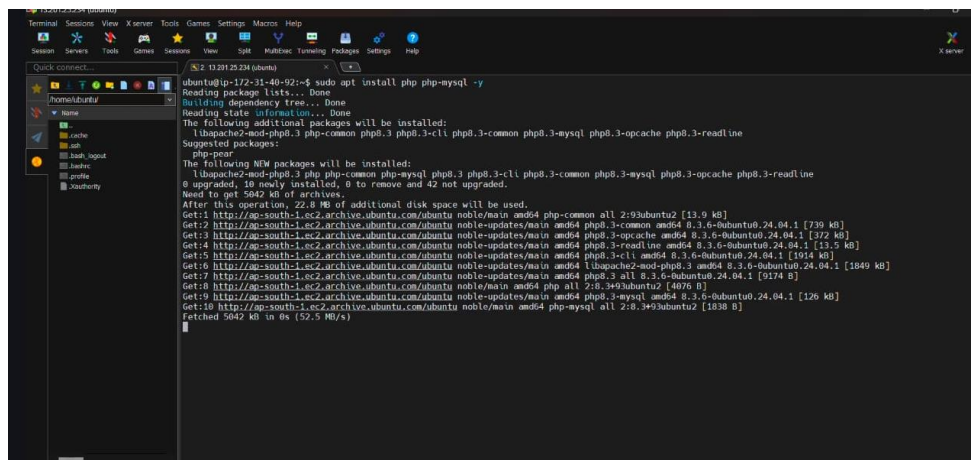
mysql> GRANT ALL PRIVILEGES ON WP.* TO 'WP-USER'@'%';
Query OK, 0 rows affected (0.00 sec)

mysql> FLUSH PRIVILEGES;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near 'FLU
ES PRIVILEGES' at line 1
mysql> FLUSH PRIVILEGES;
Query OK, 0 rows affected (0.01 sec)

mysql> EXIT
Bye
ubuntu@ip-172-31-42-126:~$ cd /var/www/html
ubuntu@ip-172-31-42-126:~$ cd /var/www/html$

```

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



```

ubuntu@ip-172-31-40-92:~$ sudo apt install php php-mysql -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
libapache2-mod-php8.3 php-common php8.3-cli php8.3-common php8.3-mysql php8.3-opcache php8.3-readline
Suggested packages:
php-pear
The following NEW packages will be installed:
libapache2-mod-php8.3 php-common php-mysql php8.3-cli php8.3-common php8.3-mysql php8.3-opcache php8.3-readline
0 upgraded, 10 newly installed, 0 to remove and 42 not upgraded.
Need to get 5042 kB of archives.
After this operation, 22.8 MB of additional disk space will be used.
Get:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 php-common all 2:9ubuntu2 [13.9 kB]
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 php8.3-common amd64 8.3.6-0ubuntu0.24.04.1 [739 kB]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 php8.3-opcache amd64 8.3.6-0ubuntu0.24.04.1 [372 kB]
Get:4 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 php8.3-readline amd64 8.3.6-0ubuntu0.24.04.1 [33.5 kB]
Get:5 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 php8.3-cli amd64 8.3.6-0ubuntu0.24.04.1 [1914 kB]
Get:6 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 libapache2-mod-php8.3 amd64 8.3.6-0ubuntu0.24.04.1 [1849 kB]
Get:7 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 php8.3 all 8.3.6-0ubuntu0.24.04.1 [2974 B]
Get:8 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 php all 2:8.3ubuntu2 [4076 B]
Get:9 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 php8.3-mysql amd64 8.3.6-0ubuntu0.24.04.1 [126 kB]
Get:10 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 php-mysql all 2:8.3ubuntu2 [1838 B]
Fetched 5042 kB in 0s (52.5 MB/s)

```

- Install and Configure WordPress

- cd /var/www/html
- sudo wget -c <http://wordpress.org/latest.tar.gz>
- sudo tar -xzf latest.tar.gz (Unzip the file)
- sudo mv wordpress/ /var/www/html/
- cd wordpress
- sudo cp wp-config-sample.php wp-config.php

```
ubuntu@ip-172-31-42-126: /var/www/html$ ls
index.html
ubuntu@ip-172-31-42-126: /var/www/html$ sudo wget https://wordpress.org/latest.tar.gz
--2024-08-07 07:11:39-- 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: 24637199 (23M) [application/octet-stream]
Saving to: 'latest.tar.gz'

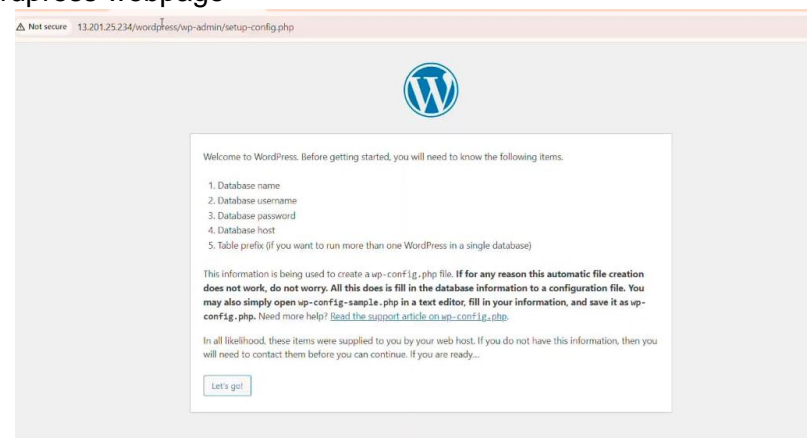
latest.tar.gz           100%[=====] 23.50M  5.88MB/s  in 6.1s

2024-08-07 07:11:46 (3.83 MB/s) - 'latest.tar.gz' saved [24637199/24637199]

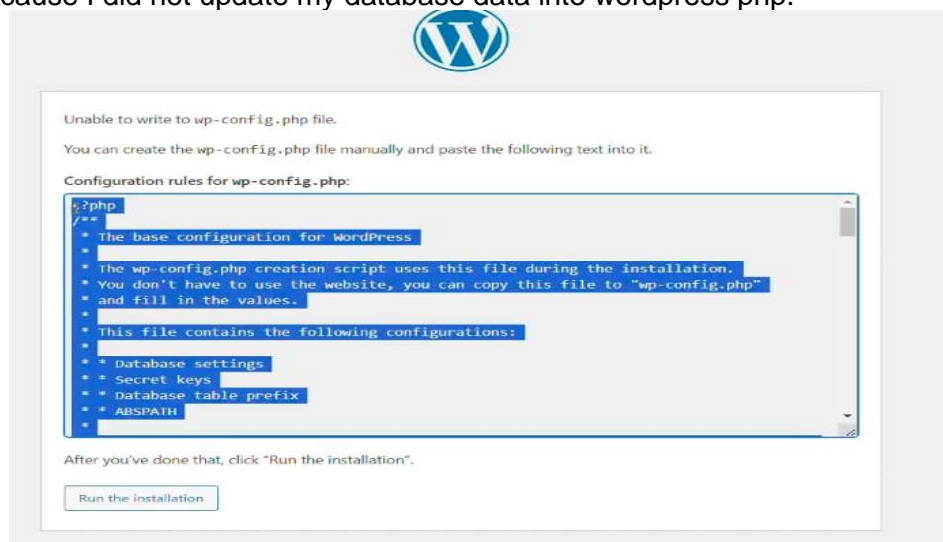
ubuntu@ip-172-31-42-126: /var/www/html$ ls
index.html  latest.tar.gz
ubuntu@ip-172-31-42-126: /var/www/html$ sudo tar -xvf latest.tar.gz
```

Update wp-config.php with database details:

- Open the browser and navigate your public IP address of your instance. You will get following wordpress webpage



- sudo nano wp-config(I created new file as wp-config.php and I copied this below data into newly created one)
- why because I did not update my database data into wordpress php.



- sudo systemctl restart apache2 (you will get login page you should enter your database credentials)



Below you should enter your database connection details. If you are not sure about these, contact your host.

Database Name
The name of the database you want to use with WordPress.

Username
Your database username.

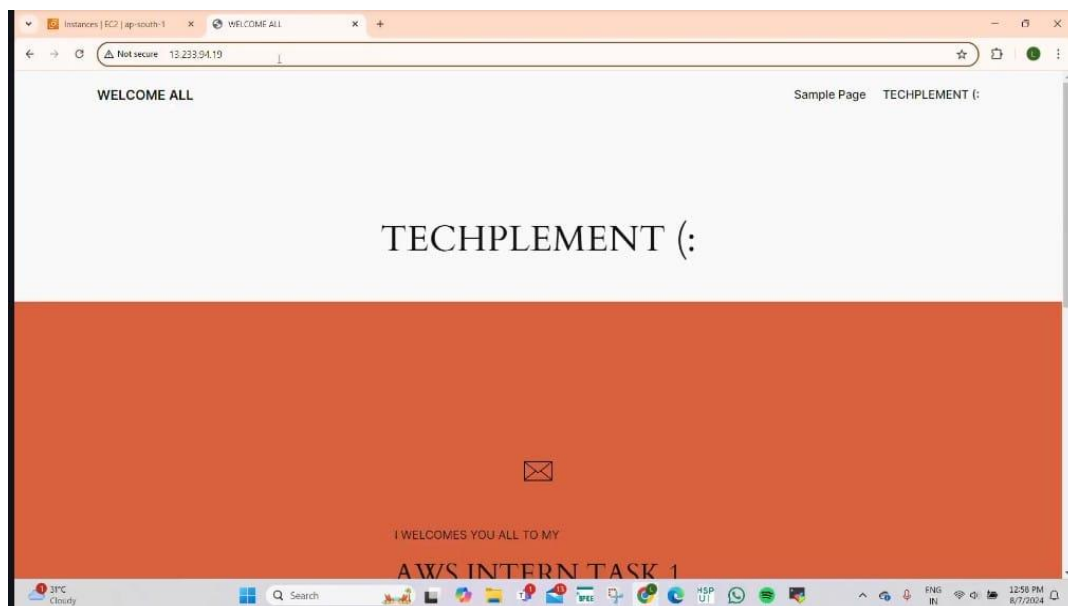
Password [Show](#)
Your database password.

Database Host
You should be able to get this info from your web host, if localhost does not work.

Table Prefix
If you want to run multiple WordPress installations in a single database, change this.

[Submit](#)

Create a welcome page:



Microservices Architecture Deployment

Steps

1. Launch Two EC2 Instances
 - Instance Type: t2.micro
 - AMI: Ubuntu*
 - Security Group Configuration:
 - MySQL Instance: SSH (Port 22), MySQL (Port 3306)(Source-mywordpress security group id)
 - WordPress Instance: SSH (Port 22), HTTP (Port 80)

Configure MySQL on the MySQL Instance1:

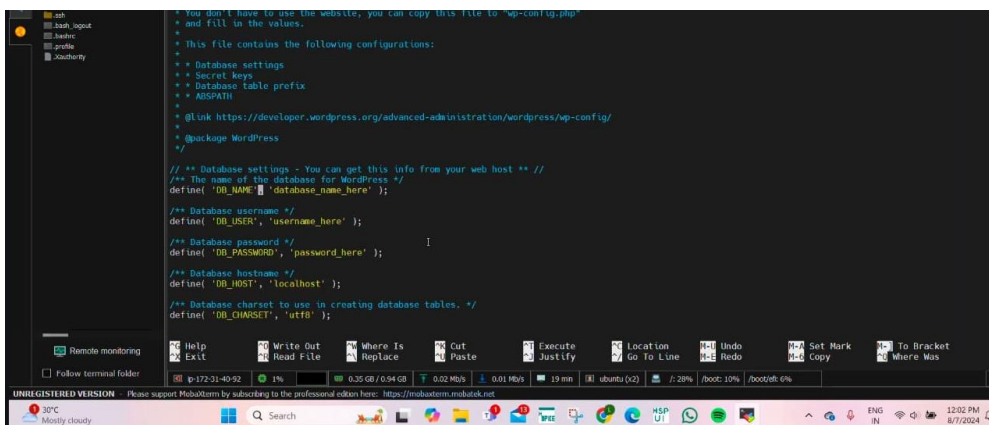
- `sudo apt update`
- `sudo apt install mysql-server`

- sudo mysql -u root -p
- CREATE DATABASE WORDPRESS;
- CREATE USER 'WP-USER'@'%' IDENTIFIED BY 'LENKA315@';
- GRANT ALL PRIVILEGES ON WORDPRESS.* TO 'WP-USER'@'%';
- FLUSH PRIVILEGES;
- EXIT;
- Sudo nano /etc/mysql/mysql.conf.d/mysqld.cnf (we have to edit the bind address (normally your system ip address) to everyone (0.0.0.0))
- Allow remote connections by editing the MySQL configuration

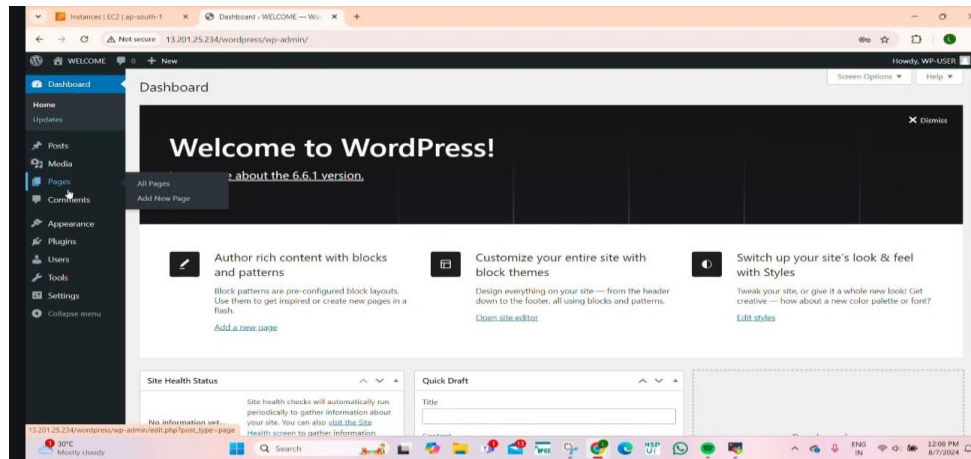
```
# * Fine Tuning
#
# Instead of skip-networking the default is now to listen only on
# localhost which is more compatible and is not less secure.
bind-address            = 0.0.0.0
mysqlx-bind-address     = 0.0.0.0
#
# * Fine Tuning
#
```

Configure Apache2, PHP on the WordPress Instance2:

- Repeat the same process for apache2 and PHP runtime installation as we did before in monolithic architecture.
- Install the wordpress :
- cd /var/www/html
- sudo wget -c <http://wordpress.org/latest.tar.gz>
- sudo tar -xzf latest.tar.gz (Unzip the file)
- sudo mv wordpress/ /var/www/html/
- cd wordpress
- sudo cp wp-config-sample.php wp-config.php
- sudo nano wp-config.php



- Update the wp-config.php file with your database data (note: update without fail and without spelling mistake)
- Enter the host name as your private IP address of your MySQL instance (it will establish the connection between the 2 EC2 instances)
- sudo systemctl restart apache2
- navigate to wordpress instance and copy the public ip address and browse with that you will get a wordpress install page
- install the wordpress and login with your user credentials



- **Creating a Welcome Page:**
- Navigate to Pages >> create a webpage>>publish>>settings>>reading>>Select static >>choose your published page>>save

SETTING IP ADDRESS AS SITE -ADDRESS:

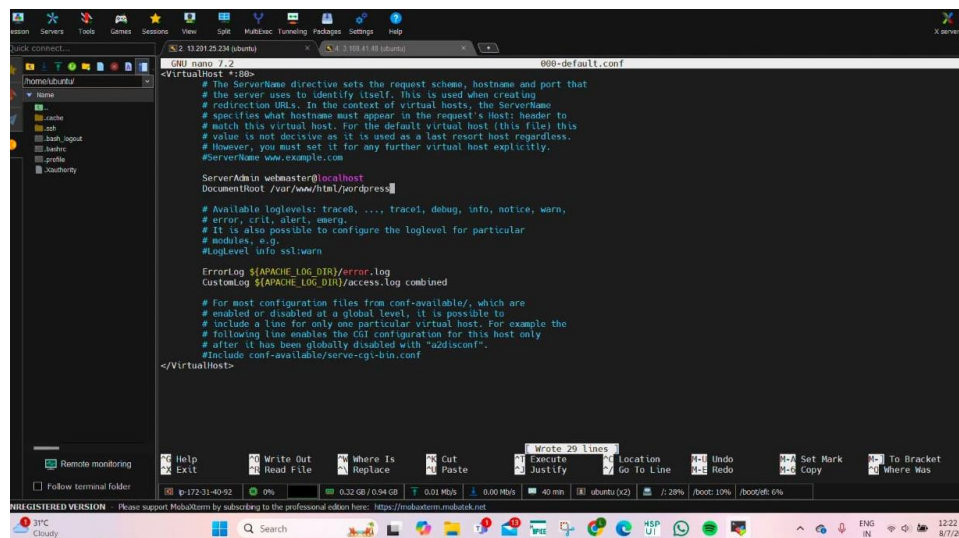
Step1: Go to settings and navigate to general and erase the wordpress name in both site and wordpress urls and save the changes

Step2: Go to wordpress instance and change the directory as `cd /etc/apache2/sites-available`

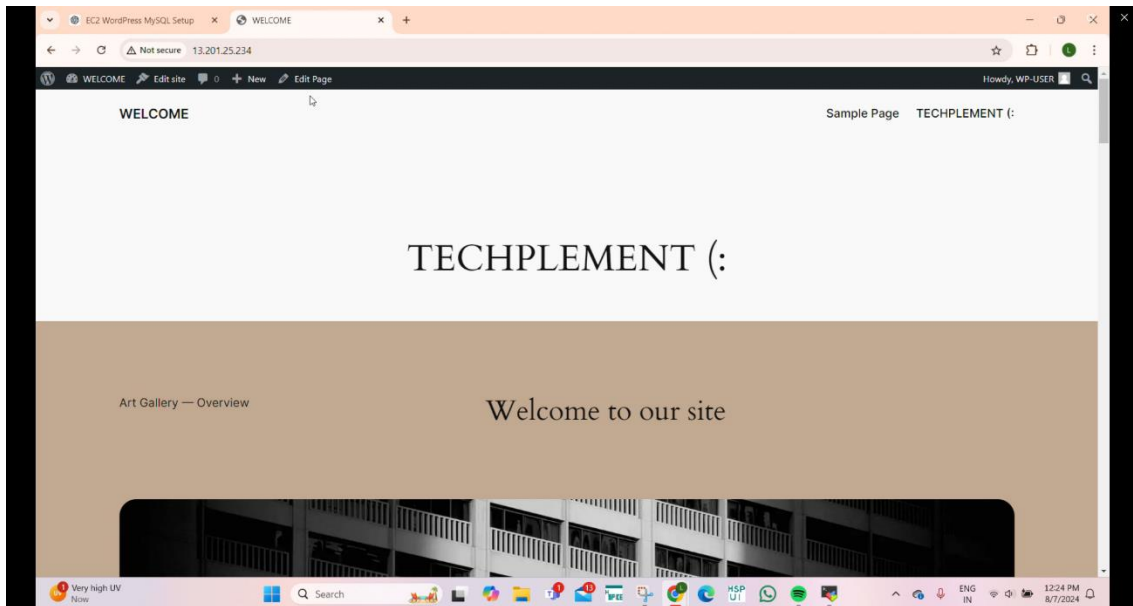
`>cd /etc/apache2/sites-available`

`>sudo nano 000-default.conf`

`>add a wordpress name to the default apache2 server address`



Step3: sudo systemctl restart apache2



References:

- <https://youtu.be/8Uofkq718n8?si=zueAYhPkVbumbJ6j>
- Chatgpt

THANK YOU (:

#TECHPLEMENT #techplement #techplementteam #techplementinternship