# Week 1 Task- Cloud (AWS) Submission

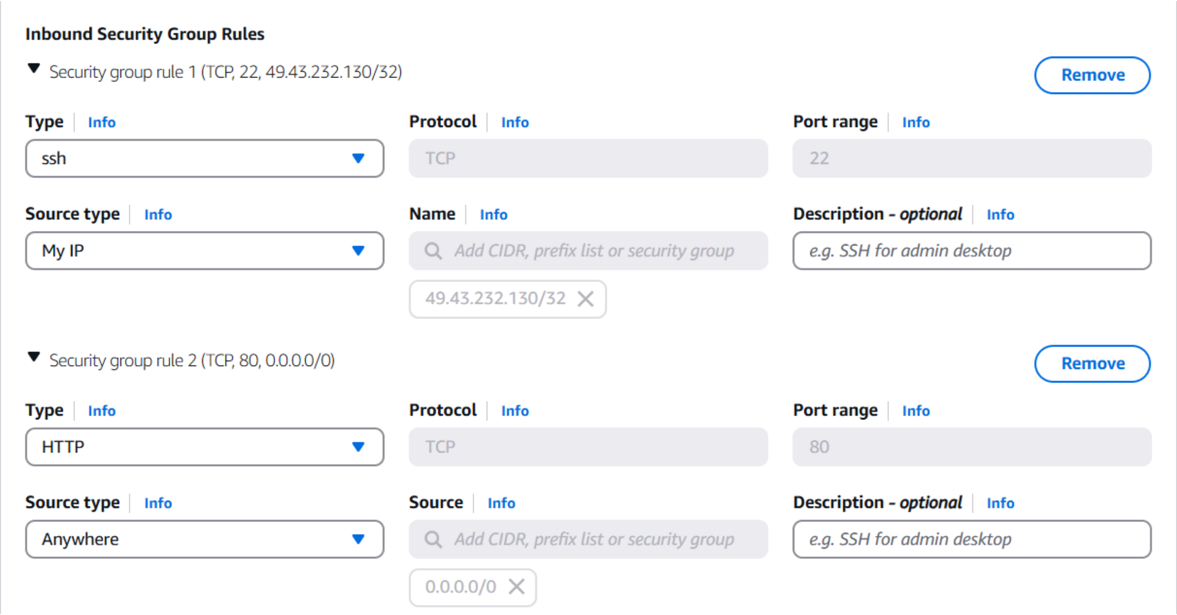
## Introduction

This report details the step-by-step process followed to complete the AWS-based task assigned as part of the Techplement Internship. The document includes explanations, references used, and screenshots of the AWS services configured.

## Steps Followed for monolithic

### Step 1: Setting Up the Environment

- Created an AWS account and configured IAM roles.
- Launched an EC2 instance (Ubuntu) and set up the security groups.



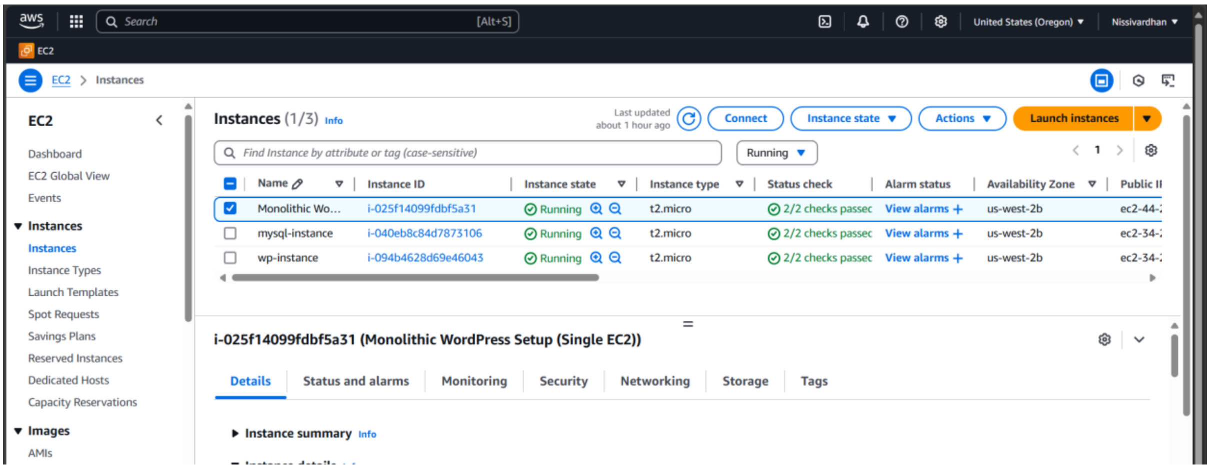
**Inbound Security Group Rules**

▼ Security group rule 1 (TCP, 22, 49.43.232.130/32)

Type: ssh
Protocol: TCP
Port range: 22
Source type: My IP
Name: Add CIDR, prefix list or security group
49.43.232.130/32 ✕
Description - *optional*: *e.g. SSH for admin desktop*

▼ Security group rule 2 (TCP, 80, 0.0.0.0/0)

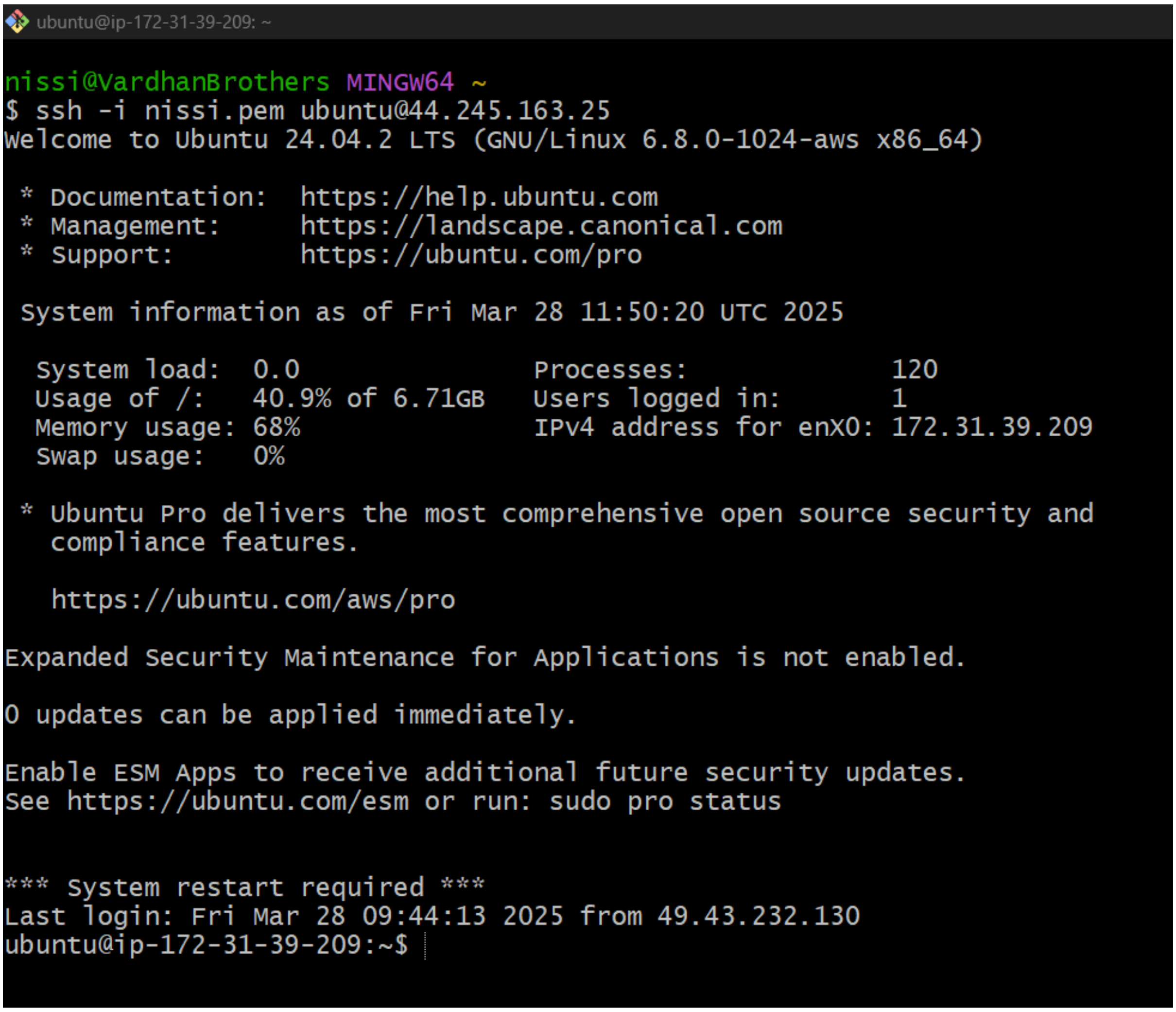
Type: HTTP
Protocol: TCP
Port range: 80
Source type: Anywhere
Source: Add CIDR, prefix list or security group
0.0.0.0/0 ✕
Description - *optional*: *e.g. SSH for admin desktop*



| | Name | Instance ID | Instance state | Instance type | Status check | Alarm status | Availability Zone | Public II |
|---|---|---|---|---|---|---|---|---|
| ☑ | Monolithic Wo… | i-025f14099fdbf5a31 | Running | t2.micro | 2/2 checks passec | View alarms + | us-west-2b | ec2-44-: |
| □ | mysql-instance | i-040eb8c84d7873106 | Running | t2.micro | 2/2 checks passec | View alarms + | us-west-2b | ec2-34-: |
| □ | wp-instance | i-094b4628d69e46043 | Running | t2.micro | 2/2 checks passec | View alarms + | us-west-2b | ec2-34-: |

i-025f14099fdbf5a31 (Monolithic WordPress Setup (Single EC2))

- Connected to the instance via SSH.



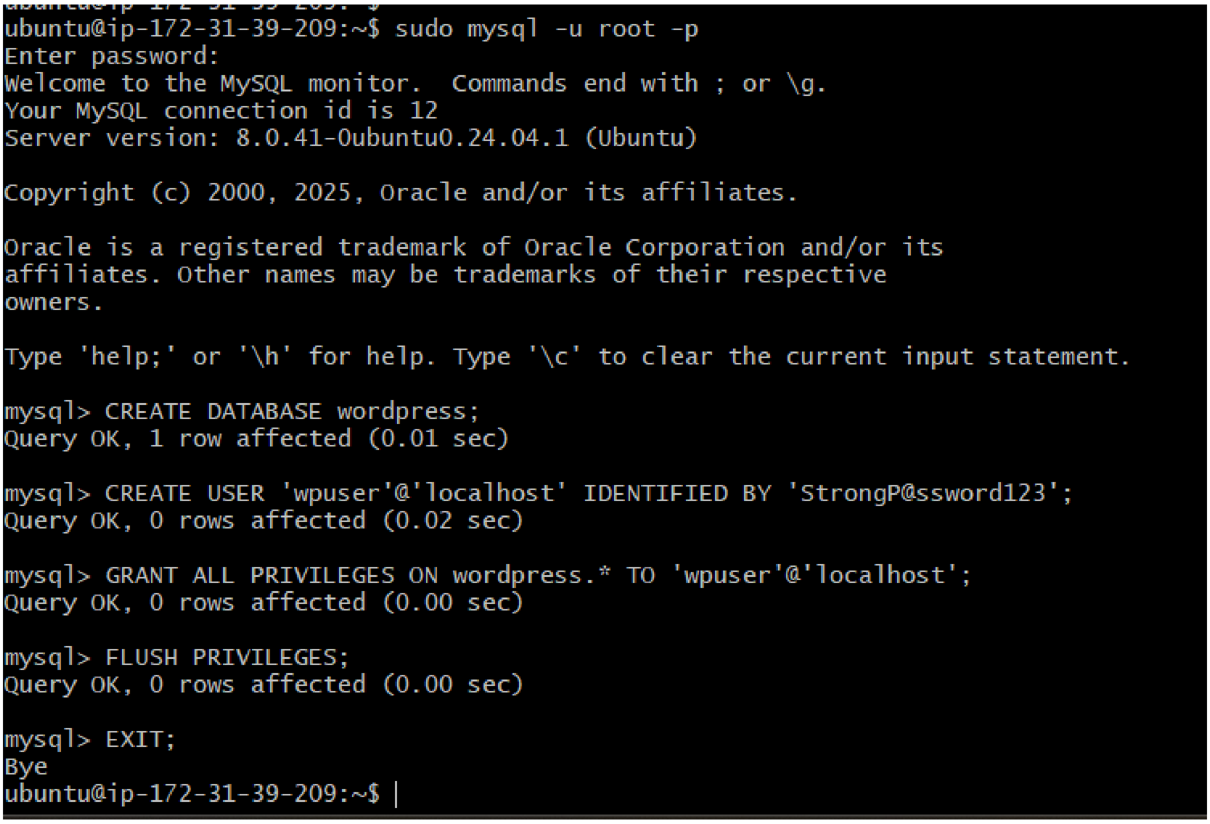
```
nissi@VardhanBrothers MINGW64 ~
$ ssh -i nissi.pem ubuntu@44.245.163.25
Welcome to Ubuntu 24.04.2 LTS (GNU/Linux 6.8.0-1024-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/pro

 System information as of Fri Mar 28 11:50:20 UTC 2025

  System load:  0.0               Processes:             120
  Usage of /:   40.9% of 6.71GB   Users logged in:       1
  Memory usage: 68%               IPv4 address for enX0: 172.31.39.209
  Swap usage:   0%

 * Ubuntu Pro delivers the most comprehensive open source security and
   compliance features.

   https://ubuntu.com/aws/pro

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status


*** System restart required ***
Last login: Fri Mar 28 09:44:13 2025 from 49.43.232.130
ubuntu@ip-172-31-39-209:~$
```

## Installing Required Packages

- Installed Apache2 web server and MySQL database.
- Configured necessary firewall rules.

## Configuring MySQL Server

- Created a MySQL database for WordPress.
- Created a user and granted privileges.



```
ubuntu@ip-172-31-39-209:~$
ubuntu@ip-172-31-39-209:~$ sudo mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 12
Server version: 8.0.41-0ubuntu0.24.04.1 (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 'wpuser'@'localhost' IDENTIFIED BY 'StrongP@ssword123';
Query OK, 0 rows affected (0.02 sec)

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

mysql> FLUSH PRIVILEGES;
Query OK, 0 rows affected (0.00 sec)

mysql> EXIT;
Bye
ubuntu@ip-172-31-39-209:~$ |
```
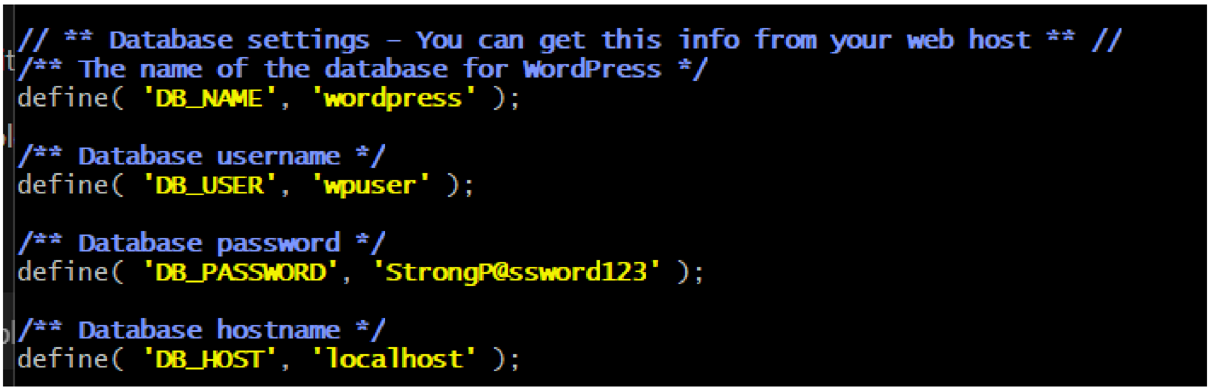
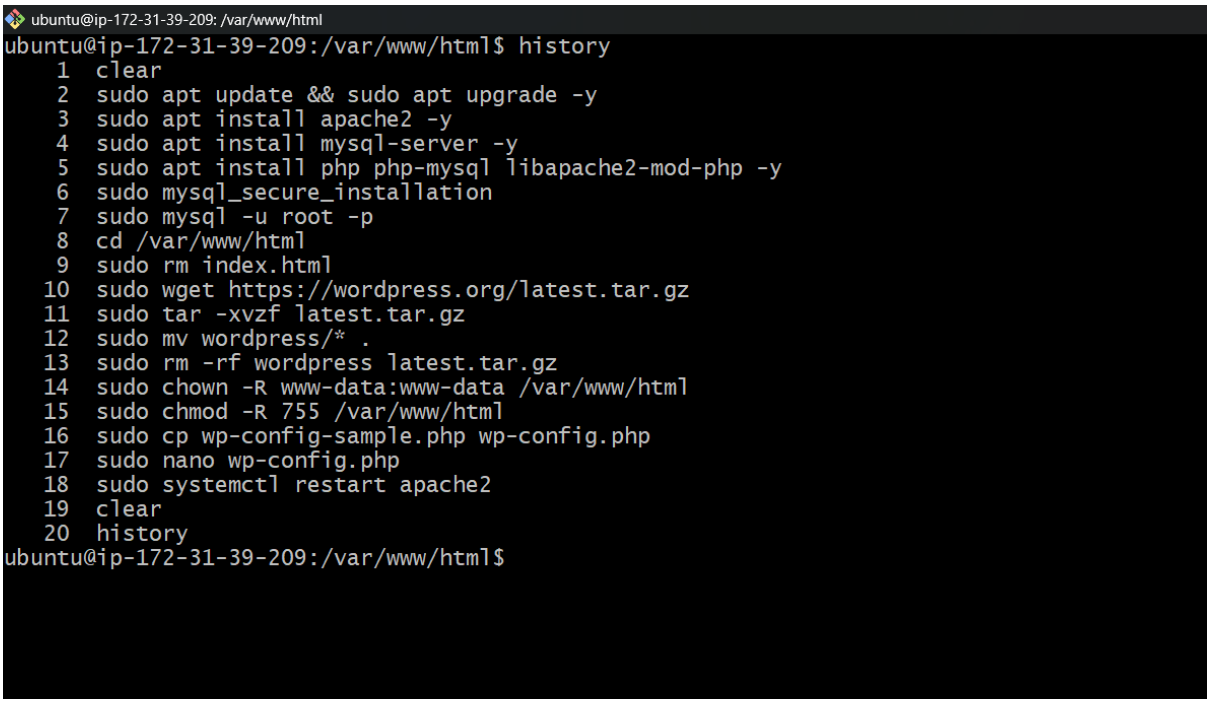

## Deploying WordPress

- Downloaded and extracted WordPress.
- Configured the wp-config.php file to connect to the database.



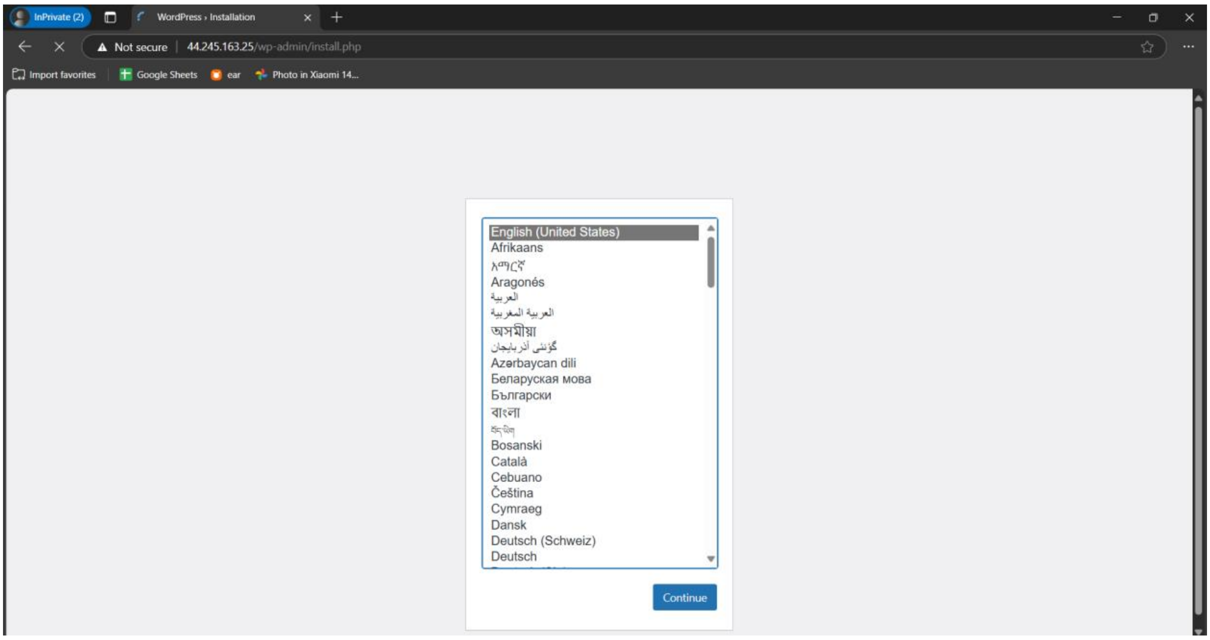
```
// ** Database settings - You can get this info from your web host ** //
/** The name of the database for WordPress */
define( 'DB_NAME', 'wordpress' );

/** Database username */
define( 'DB_USER', 'wpuser' );

/** Database password */
define( 'DB_PASSWORD', 'StrongP@ssword123' );

/** Database hostname */
define( 'DB_HOST', 'localhost' );
```

History of commands used on Single Instance

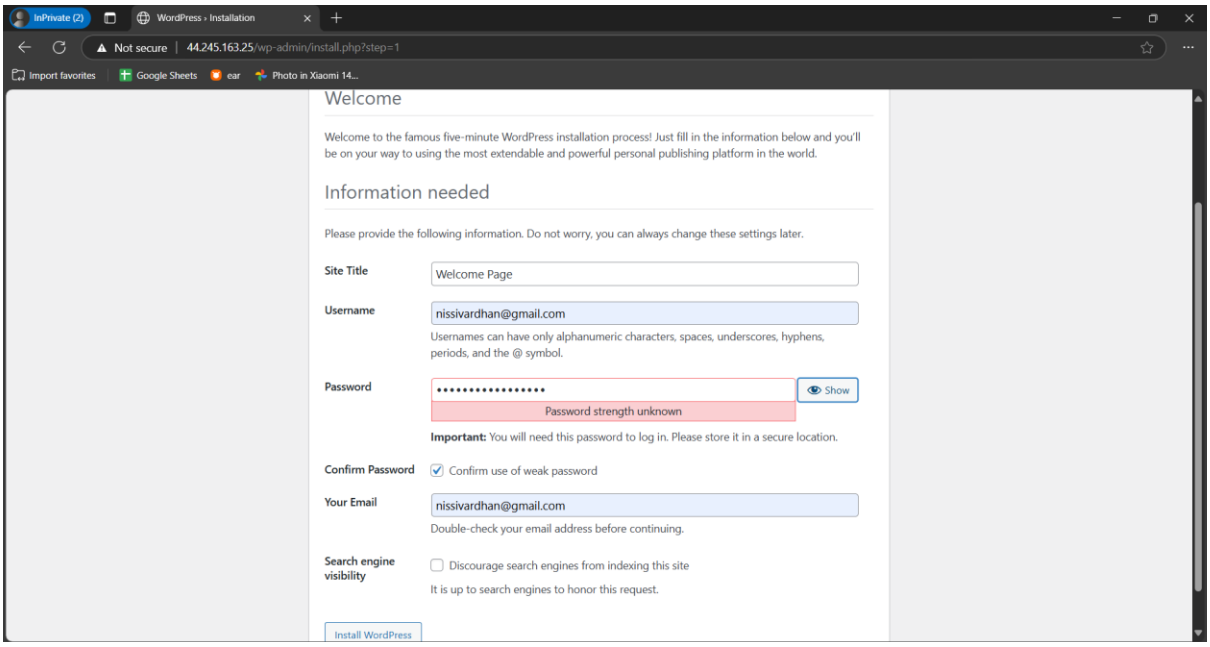


```
ubuntu@ip-172-31-39-209:/var/www/html$ history
    1  clear
    2  sudo apt update && sudo apt upgrade -y
    3  sudo apt install apache2 -y
    4  sudo apt install mysql-server -y
    5  sudo apt install php php-mysql libapache2-mod-php -y
    6  sudo mysql_secure_installation
    7  sudo mysql -u root -p
    8  cd /var/www/html
    9  sudo rm index.html
   10  sudo wget https://wordpress.org/latest.tar.gz
   11  sudo tar -xvzf latest.tar.gz
   12  sudo mv wordpress/* .
   13  sudo rm -rf wordpress latest.tar.gz
   14  sudo chown -R www-data:www-data /var/www/html
   15  sudo chmod -R 755 /var/www/html
   16  sudo cp wp-config-sample.php wp-config.php
   17  sudo nano wp-config.php
   18  sudo systemctl restart apache2
   19  clear
   20  history
ubuntu@ip-172-31-39-209:/var/www/html$
```

# Accessed the WordPress site through the public IP.



English (United States)
Afrikaans
አማርኛ
Aragonés
العربية
العربية المغربية
অসমীয়া
گؤنئی آذربایجان
Azərbaycan dili
Беларуская мова
Български
বাংলা
བོད་ཡིག
Bosanski
Català
Cebuano
Čeština
Cymraeg
Dansk
Deutsch (Schweiz)
Deutsch



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 Page

Username: nissivardhan@gmail.com

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

Password: •••••••••••••••••  Show

Password strength unknown

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

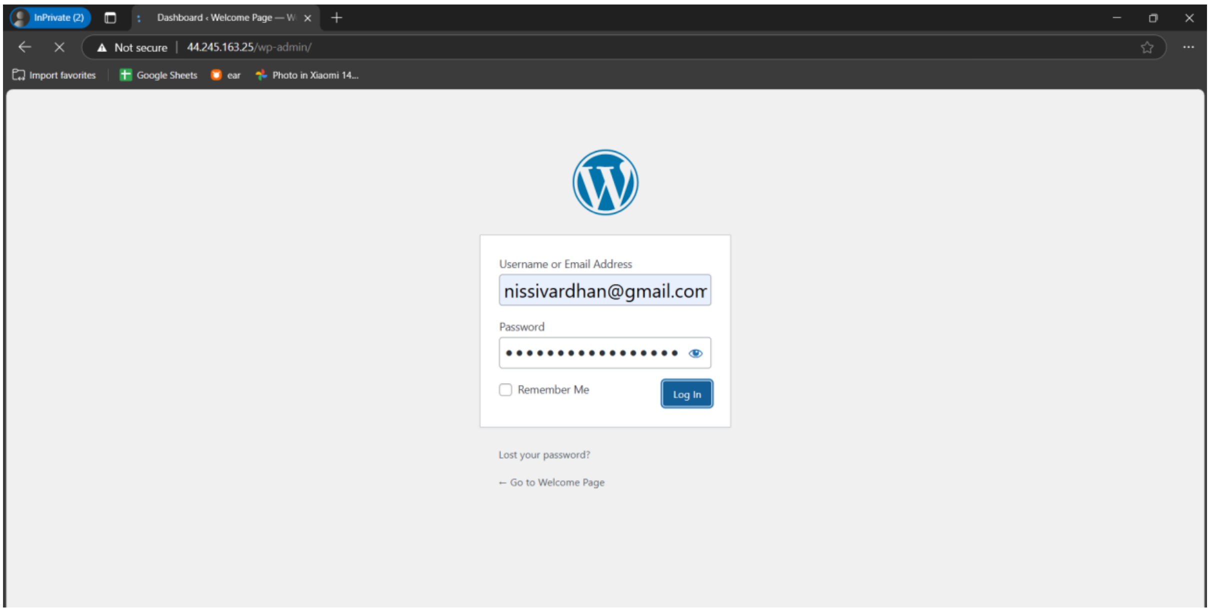
Confirm Password: ☑ Confirm use of weak password

Your Email: nissivardhan@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.



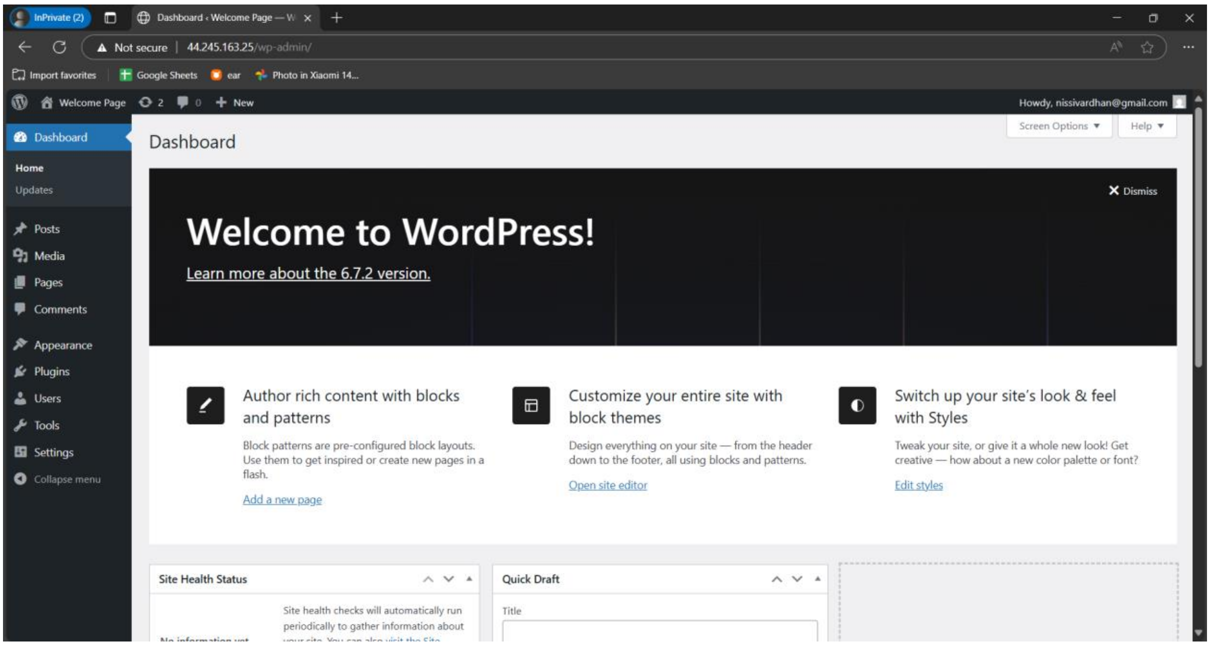
Username or Email Address

nissivardhan@gmail.com

Password

••••••••••••••••••

□ Remember Me



Dashboard

Welcome to WordPress!

Learn more about the 6.7.2 version.

Author rich content with blocks and patterns

Block patterns are pre-configured block layouts. Use them to get inspired or create new pages in a flash.

Add a new page

Customize your entire site with block themes

Design everything on your site — from the header down to the footer, all using blocks and patterns.

Open site editor

Switch up your site's look & feel with Styles

Tweak your site, or give it a whole new look! Get creative — how about a new color palette or font?

Edit styles

Site Health Status

Site health checks will automatically run periodically to gather information about your site. You can also visit the Site

No information yet

Quick Draft

Title

# Introduction

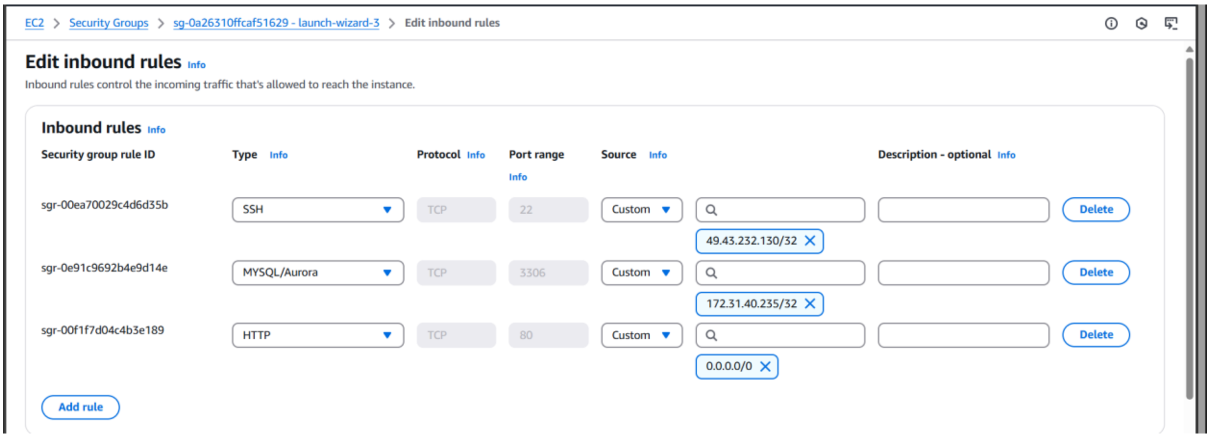
This report details the step-by-step process followed to deploy a WordPress application using a microservices architecture on AWS. The deployment is structured with separate instances handling the application, database, and other services independently.

# Steps Followed

## Setting Up AWS Infrastructure

- Launched multiple EC2 instances for different services:
  - **Application Server (WordPress)**
  - **Database Server (MySQL)**
- Configured Security Groups:
  - Allowed HTTP/HTTPS for the application instance.
  - Allowed MySQL port (3306) **only for the WordPress instance**.
  - Allowed SSH access **only from a specific IP** (for security).

# WordPress SG



EC2 > Security Groups > sg-0a26310ffcaf51629 - launch-wizard-3 > Edit inbound rules

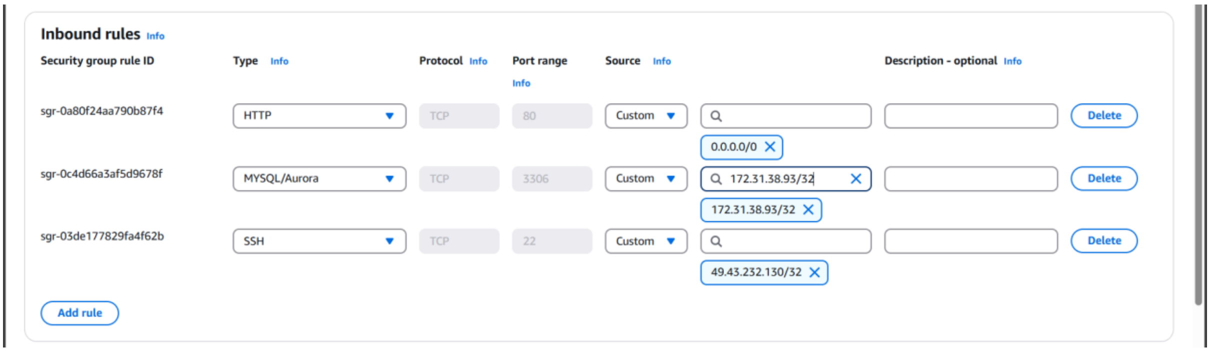
## Edit inbound rules Info

Inbound rules control the incoming traffic that's allowed to reach the instance.

### Inbound rules Info

| Security group rule ID | Type Info | Protocol Info | Port range Info | Source Info | | Description - optional Info | |
|---|---|---|---|---|---|---|---|
| sgr-00ea70029c4d6d35b | SSH | TCP | 22 | Custom | 49.43.232.130/32 | | Delete |
| sgr-0e91c9692b4e9d14e | MYSQL/Aurora | TCP | 3306 | Custom | 172.31.40.235/32 | | Delete |
| sgr-00f1f7d04c4b3e189 | HTTP | TCP | 80 | Custom | 0.0.0.0/0 | | Delete |

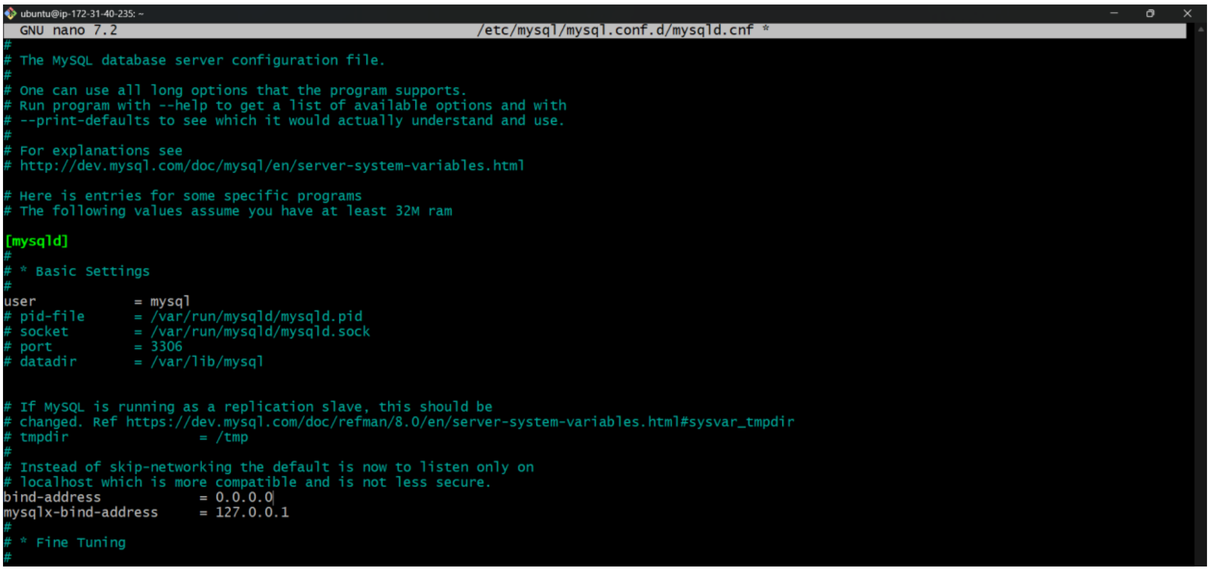
# MySql SG



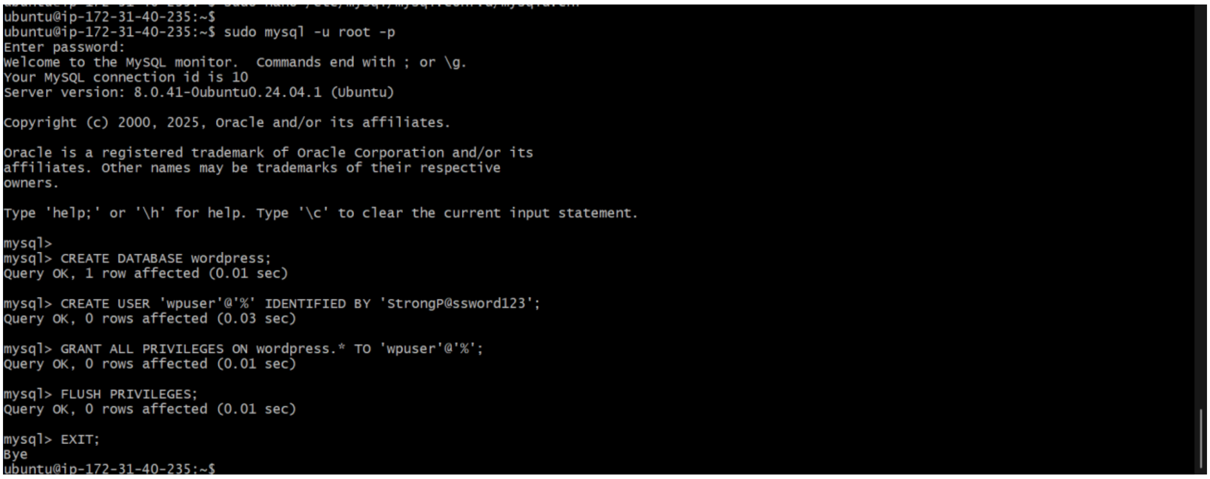
### Inbound rules Info

| Security group rule ID | Type Info | Protocol Info | Port range Info | Source Info | | Description - optional Info | |
|---|---|---|---|---|---|---|---|
| sgr-0a80f24aa790b87f4 | HTTP | TCP | 80 | Custom | 0.0.0.0/0 | | Delete |
| sgr-0c4d66a3af5d9678f | MYSQL/Aurora | TCP | 3306 | Custom | 172.31.38.93/32<br>172.31.38.93/32 | | Delete |
| sgr-03de177829fa4f62b | SSH | TCP | 22 | Custom | 49.43.232.130/32 | | Delete |

# Setting Up MySQL Server (Database Instance)



```
  GNU nano 7.2                      /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
#
```



```
ubuntu@ip-172-31-40-235:~$ sudo nano /etc/mysql/mysql.conf.d/mysqld.cnf
ubuntu@ip-172-31-40-235:~$
ubuntu@ip-172-31-40-235:~$ sudo mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 10
Server version: 8.0.41-0ubuntu0.24.04.1 (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>
mysql> CREATE DATABASE wordpress;
Query OK, 1 row affected (0.01 sec)

mysql> CREATE USER 'wpuser'@'%' IDENTIFIED BY 'StrongP@ssword123';
Query OK, 0 rows affected (0.03 sec)

mysql> GRANT ALL PRIVILEGES ON wordpress.* TO 'wpuser'@'%';
Query OK, 0 rows affected (0.01 sec)

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

mysql> EXIT;
Bye
ubuntu@ip-172-31-40-235:~$
```
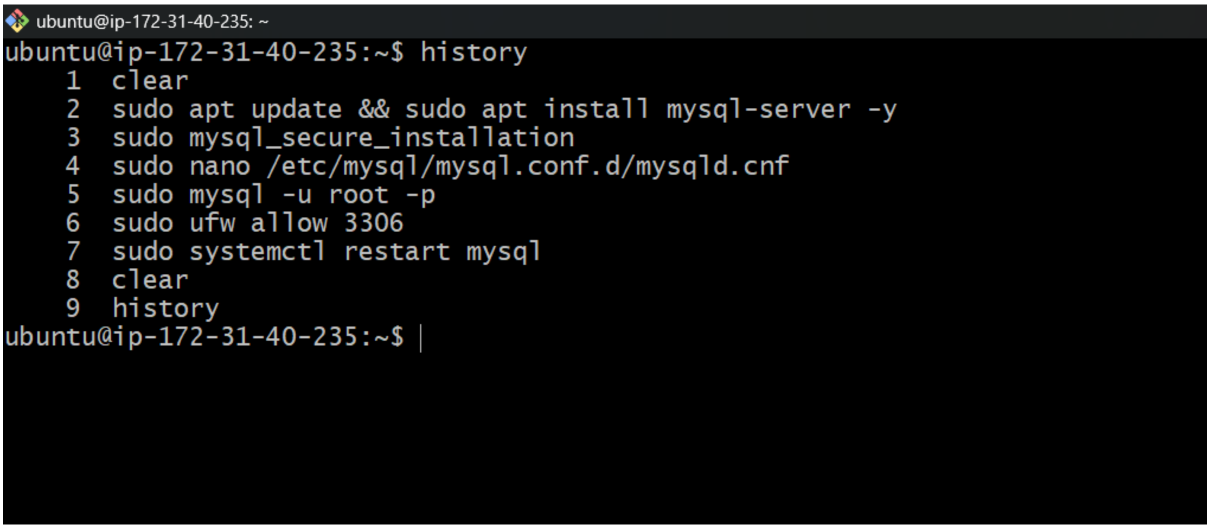
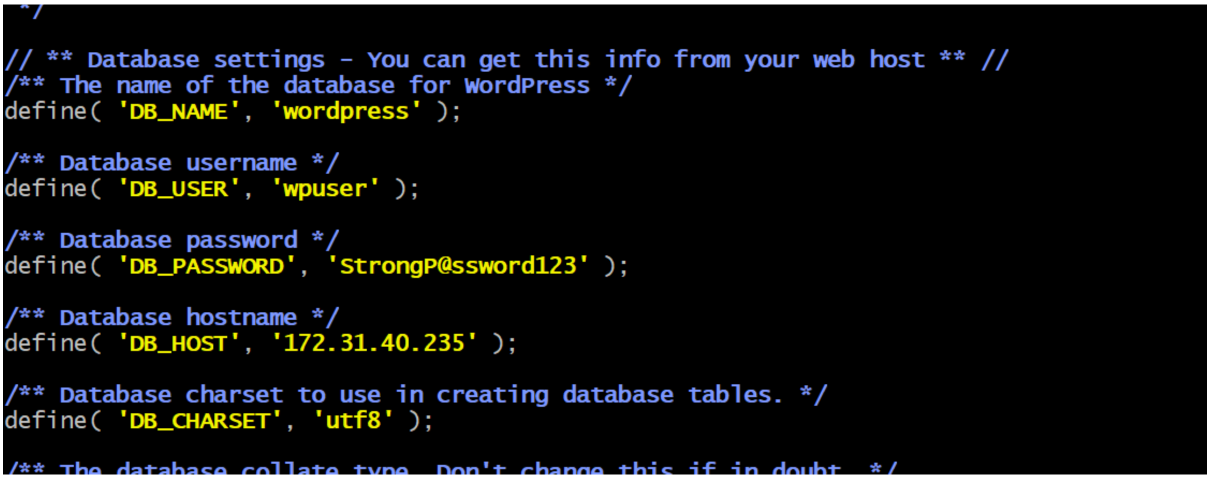

## History of commands of MySql Instance



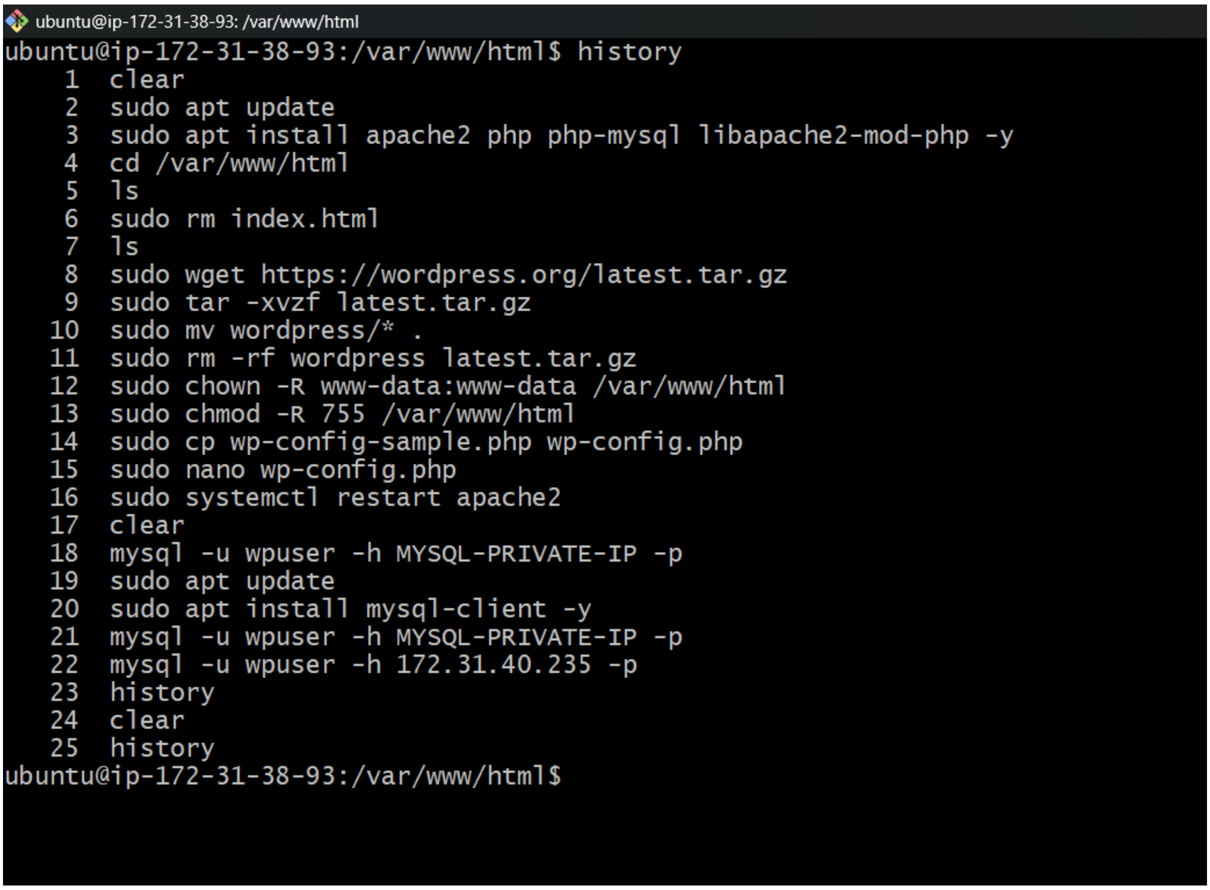
```
ubuntu@ip-172-31-40-235:~$ history
    1  clear
    2  sudo apt update && sudo apt install mysql-server -y
    3  sudo mysql_secure_installation
    4  sudo nano /etc/mysql/mysql.conf.d/mysqld.cnf
    5  sudo mysql -u root -p
    6  sudo ufw allow 3306
    7  sudo systemctl restart mysql
    8  clear
    9  history
ubuntu@ip-172-31-40-235:~$
```

## Setting Up the Application Server (WordPress Instance)



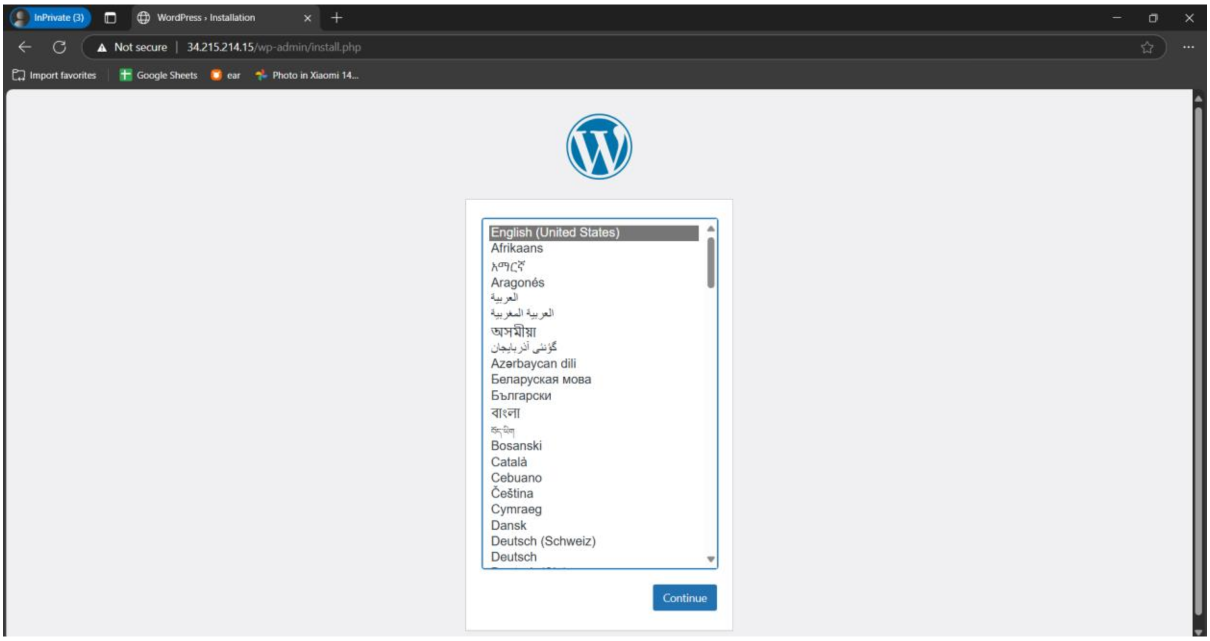
```
 */

// ** Database settings - You can get this info from your web host ** //
/** The name of the database for WordPress */
define( 'DB_NAME', 'wordpress' );

/** Database username */
define( 'DB_USER', 'wpuser' );

/** Database password */
define( 'DB_PASSWORD', 'StrongP@ssword123' );

/** Database hostname */
define( 'DB_HOST', '172.31.40.235' );

/** Database charset to use in creating database tables. */
define( 'DB_CHARSET', 'utf8' );

/** The database collate type. Don't change this if in doubt. */
```

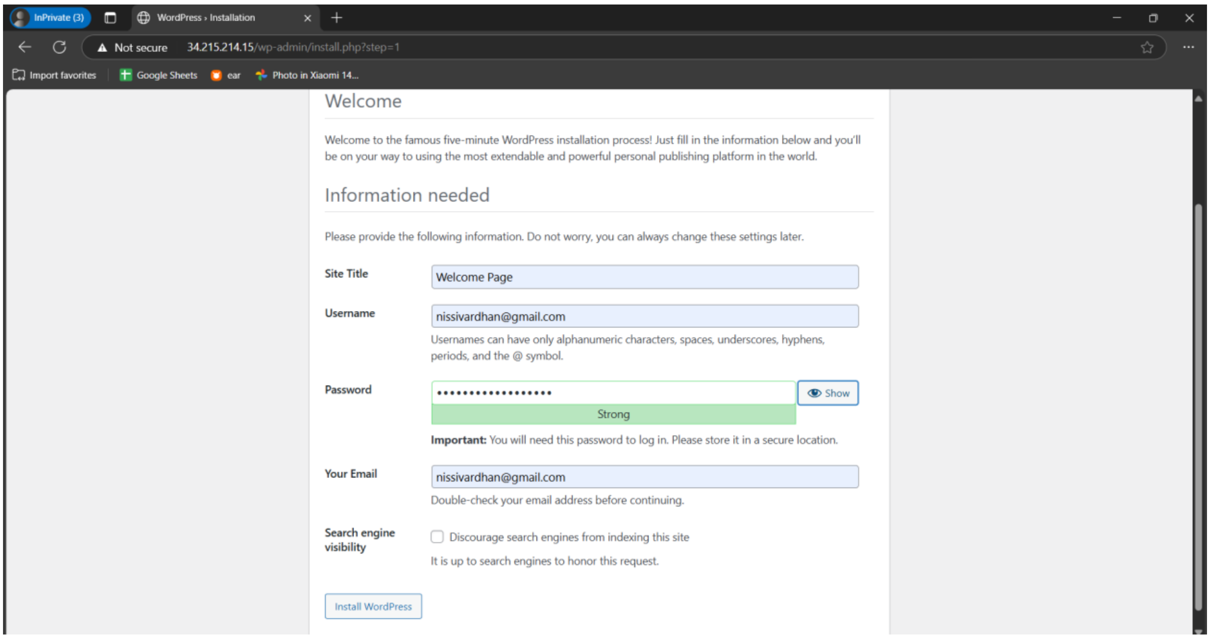
# History of commands of WordPress Instance



```
ubuntu@ip-172-31-38-93: /var/www/html
ubuntu@ip-172-31-38-93:/var/www/html$ history
    1  clear
    2  sudo apt update
    3  sudo apt install apache2 php php-mysql libapache2-mod-php -y
    4  cd /var/www/html
    5  ls
    6  sudo rm index.html
    7  ls
    8  sudo wget https://wordpress.org/latest.tar.gz
    9  sudo tar -xvzf latest.tar.gz
   10  sudo mv wordpress/* .
   11  sudo rm -rf wordpress latest.tar.gz
   12  sudo chown -R www-data:www-data /var/www/html
   13  sudo chmod -R 755 /var/www/html
   14  sudo cp wp-config-sample.php wp-config.php
   15  sudo nano wp-config.php
   16  sudo systemctl restart apache2
   17  clear
   18  mysql -u wpuser -h MYSQL-PRIVATE-IP -p
   19  sudo apt update
   20  sudo apt install mysql-client -y
   21  mysql -u wpuser -h MYSQL-PRIVATE-IP -p
   22  mysql -u wpuser -h 172.31.40.235 -p
   23  history
   24  clear
   25  history
ubuntu@ip-172-31-38-93:/var/www/html$
```

# Accessed WordPress using **public IP/domain**.





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**Username** nissivardhan@gmail.com

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

**Password** ••••••••••••••••• Show

Strong

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

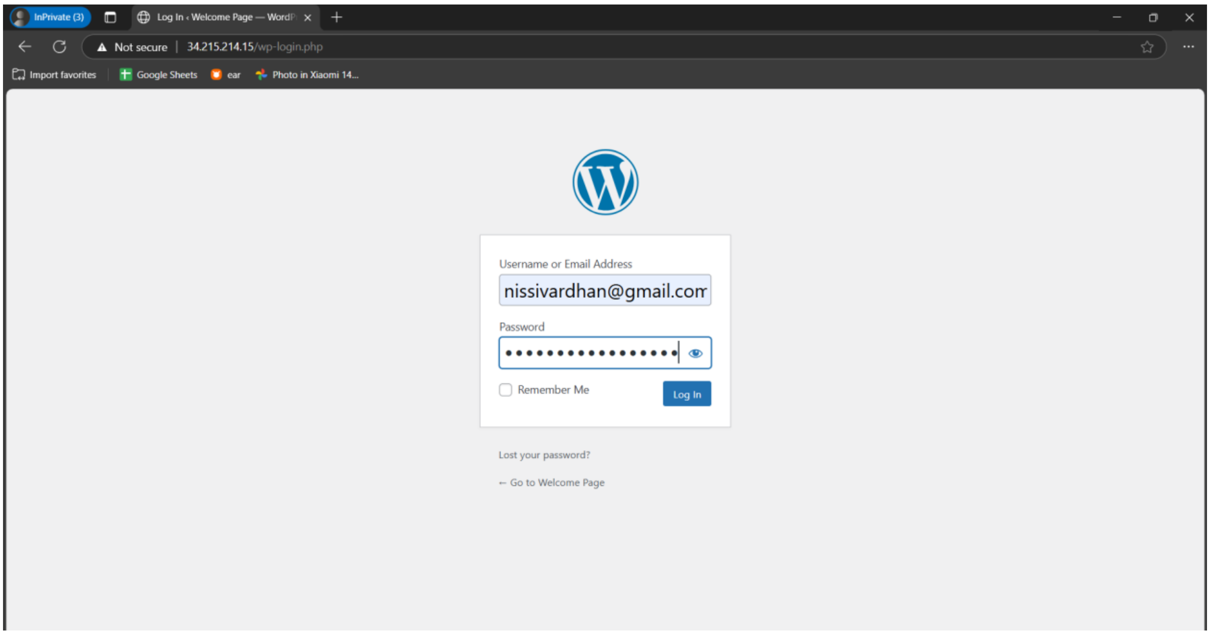
**Your Email** nissivardhan@gmail.com

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



Username or Email Address

nissivardhan@gmail.com

Password

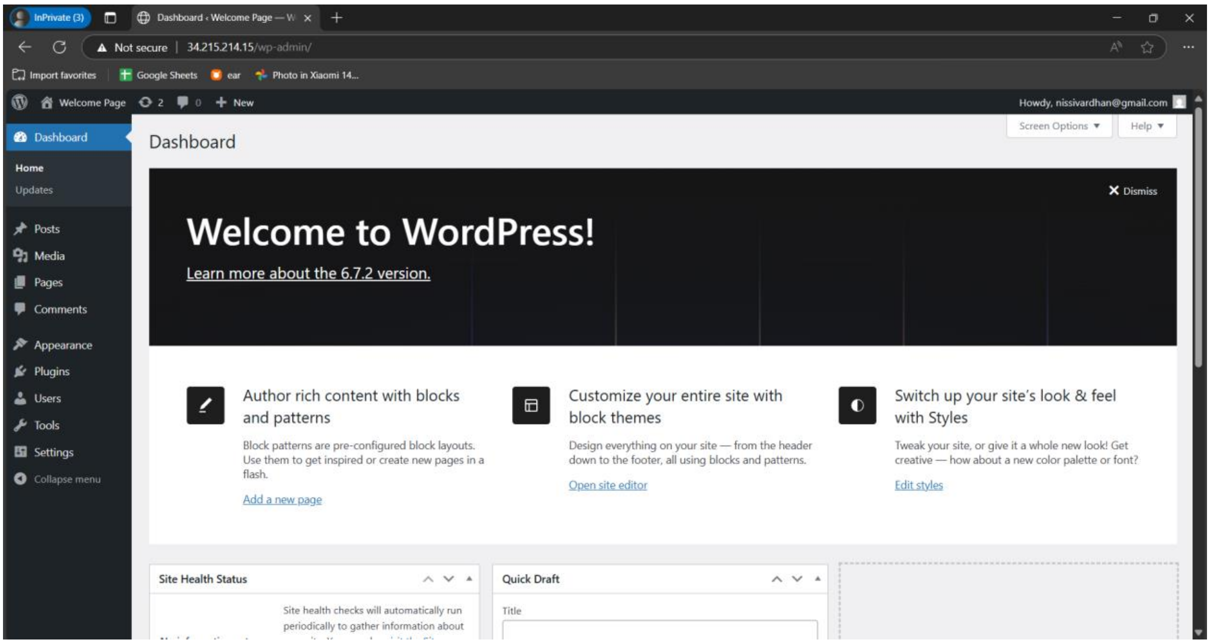
•••••••••••••••••

□ Remember Me

Log In

Lost your password?

← Go to Welcome Page



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Customize your entire site with block themes

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Switch up your site's look & feel with Styles

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Edit styles

Site Health Status

Site health checks will automatically run periodically to gather information about

Quick Draft

Title

# References Used

- AWS Documentation
- WordPress Setup Guide
- ChatGPT