

# Assignment 2

Cloud Server Project

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**IP ADDRESS - 13.41.138.108**

**DNS - <https://sportsblog.site>**

# Phase 1: Setting Up the Web Server (Ubuntu with Apache)

## Step 1 - Launch an Ubuntu Instance

Instances (1) [Info](#) Last updated 5 minutes ago [Connect](#) [Instance state](#) [Actions](#) [Launch instances](#)

[All states](#) < 1 > [Settings](#)

<input type="checkbox"/>	Name <a href="#">✎</a>	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone
<input type="checkbox"/>	Sports Blog	i-09af4e670610131a6	Running <a href="#">🔍</a>	t3.small	3/3 checks passed <a href="#">View alarms</a>		eu-west-2b

## Step 2 - Go to Elastic IPs under Network and Security on the left side

### ▼ Network & Security

Security Groups

Elastic IPs

Placement Groups

## Step 3 - Create a New Elastic IP and associate it with your Instance it should look like the below Screenshot

Allocation ID	Reverse DNS record	Associated instance ID	Private IP address	Association ID	Network
eipalloc-096b2886c3ee2cac8	-	i-09af4e670610131a6	172.31.44.166	eipassoc-08a8b1f47bb0994e7	91352

### ▼ Instance summary [Info](#)

#### Instance ID

[🔍](#) i-09af4e670610131a6

#### IPv6 address

-

#### Hostname type

IP name: ip-172-31-44-166.eu-west-2.compute.internal

#### Answer private resource DNS name

IPv4 (A)

#### Public IPv4 address

[🔍](#) 13.41.138.108 | [open address](#)

#### Instance state

Running

#### Private IP DNS name (IPv4 only)

[🔍](#) ip-172-31-44-166.eu-west-2.compute.internal

#### Instance type

t3.small

#### Private IPv4 addresses

[🔍](#) 172.31.44.166

#### Public IPv4 DNS

[🔍](#)  
ec2-13-41-138-108.eu-west-2.compute.amazonaws.com  
| [open address](#)

#### Elastic IP addresses

[🔍](#) 13.41.138.108 [Public IP]

## Step 4 - Connect to the EC2 Instance via SSH

Open your terminal/cmd in the location of your .pem key and do the below command

```
Microsoft Windows [Version 10.0.26100.3624]  
(c) Microsoft Corporation. All rights reserved.  
  
C:\Users\sacka\Downloads>ssh -i Sports-key.pem ubuntu@13.41.138.108
```

You should be connected to your instance now.

## Step 5 - Update and Upgrade the System

```
Last login: Fri Apr  4 00:57:15 2025 from 94.202.167.206  
ubuntu@ip-172-31-44-166:~$ sudo apt update|
```

```
Last login: Fri Apr  4 00:57:15 2025 from 94.202.167.206  
ubuntu@ip-172-31-44-166:~$ sudo apt upgrade|
```

## Step 6 - Now let's Install Apache on our server

```
Last login: Fri Apr  4 00:57:15 2025 from 94.202.167.206  
ubuntu@ip-172-31-44-166:~$ sudo apt install apache2|
```

## Step 7 - Check if Apache is running

```
ubuntu@ip-172-31-44-166:~$ sudo systemctl status apache2|
```

If it is not running:

```
Last login: Fri Apr  4 00:57:15 2025 from 94.202.167.206  
ubuntu@ip-172-31-44-166:~$ sudo systemctl start apache2|
```

## Step 8 - Install PHP and MySQL Connector

```
Last login: Fri Apr  4 08:07:10 2020 from 94.202.107.200
ubuntu@ip-172-31-44-166:~$ sudo apt install php libapache2-mod-php php-mysql -y|
```

```
ubuntu@ip-172-31-44-166:~$ sudo apt install mysql-server -y|
```

For secure installation do:

```
Last login: Fri Apr  4 08:07:10 2020 from 94.202.107.200
ubuntu@ip-172-31-44-166:~$ sudo mysql_secure_installation|
```

## Step 9 - Download and install WordPress:

Do the following commands one by one:

```
Last login: Fri Apr  4 08:07:10 2020 from 94.202.107.200
ubuntu@ip-172-31-44-166:~$ cd /var/www/html/
```

```
ubuntu@ip-172-31-44-166:/var/www/html$ sudo wget https://wordpress.org/latest.tar.gz
```

```
ubuntu@ip-172-31-44-166:/var/www/html$ sudo tar -xvzf latest.tar.gz
```

```
ubuntu@ip-172-31-44-166:/var/www/html$ sudo mv wordpress/* . |
```

```
ubuntu@ip-172-31-44-166:/var/www/html$ sudo rm -rf wordpress latest.tar.gz
```

```
ubuntu@ip-172-31-44-166:/var/www/html$ sudo chown -R www-data:www-data /var/www/html/|
```

## Step 10 - Create a MySQL database and user:

```
Last login: Fri Apr  4 08:07:10 2020 from 94.202.107.200
ubuntu@ip-172-31-44-166:~$ sudo mysql -u root -p|
```

Inside MySQL, do the below code line by line:

```
CREATE DATABASE sportsblog;  
CREATE USER 'bloguser'@'localhost' IDENTIFIED BY 'yourpassword';  
GRANT ALL PRIVILEGES ON sportsblog.* TO 'bloguser'@'localhost';  
FLUSH PRIVILEGES;  
EXIT;
```

Remember to change the username and password according to yourself and for the safety of my site, here I have not shown the username and password I am currently using.

The wordpress is ready now.

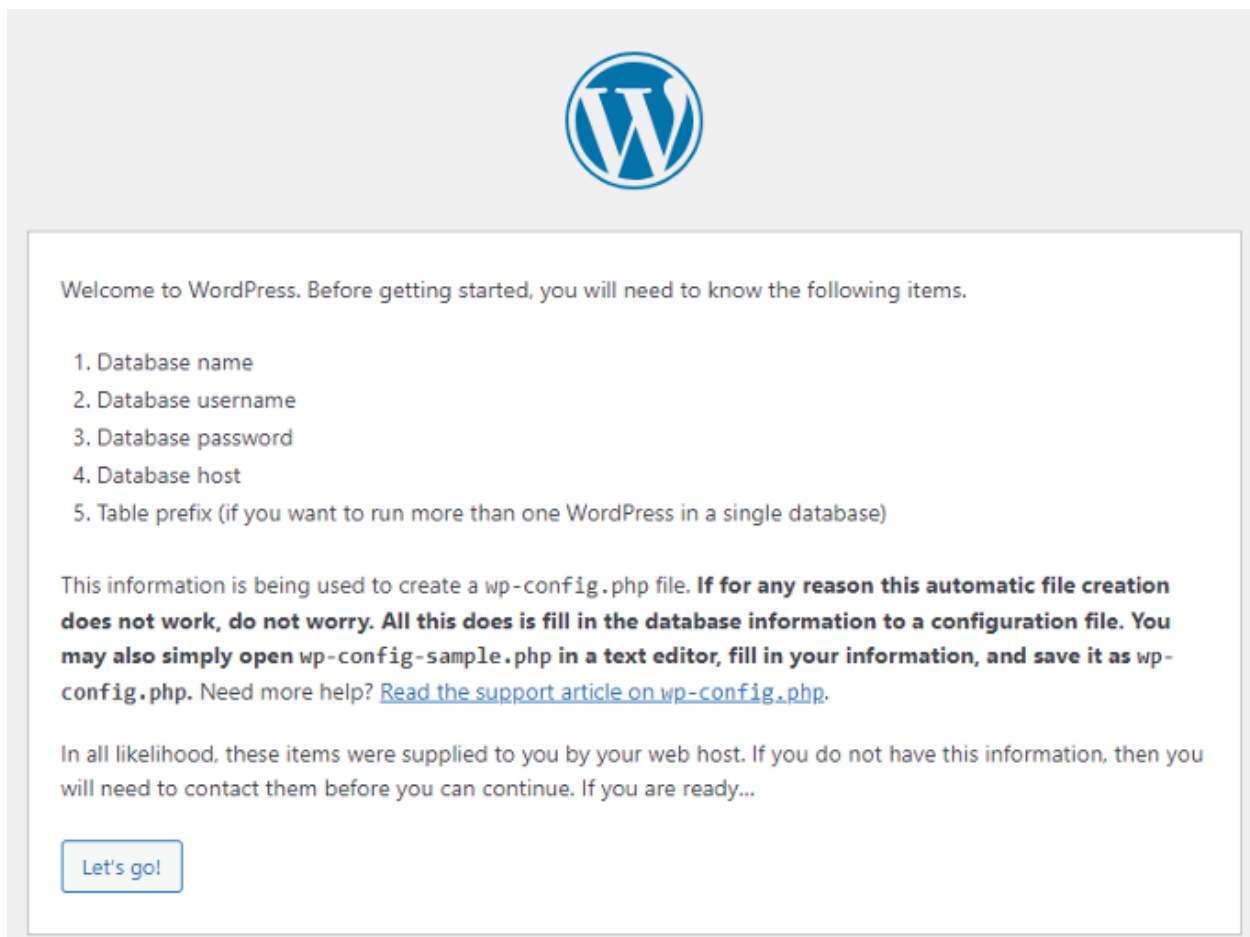
## Phase 2 – Setting up WordPress

### Step 1 –

Visit **yourdomain.com/wp-admin/** to set up WordPress.

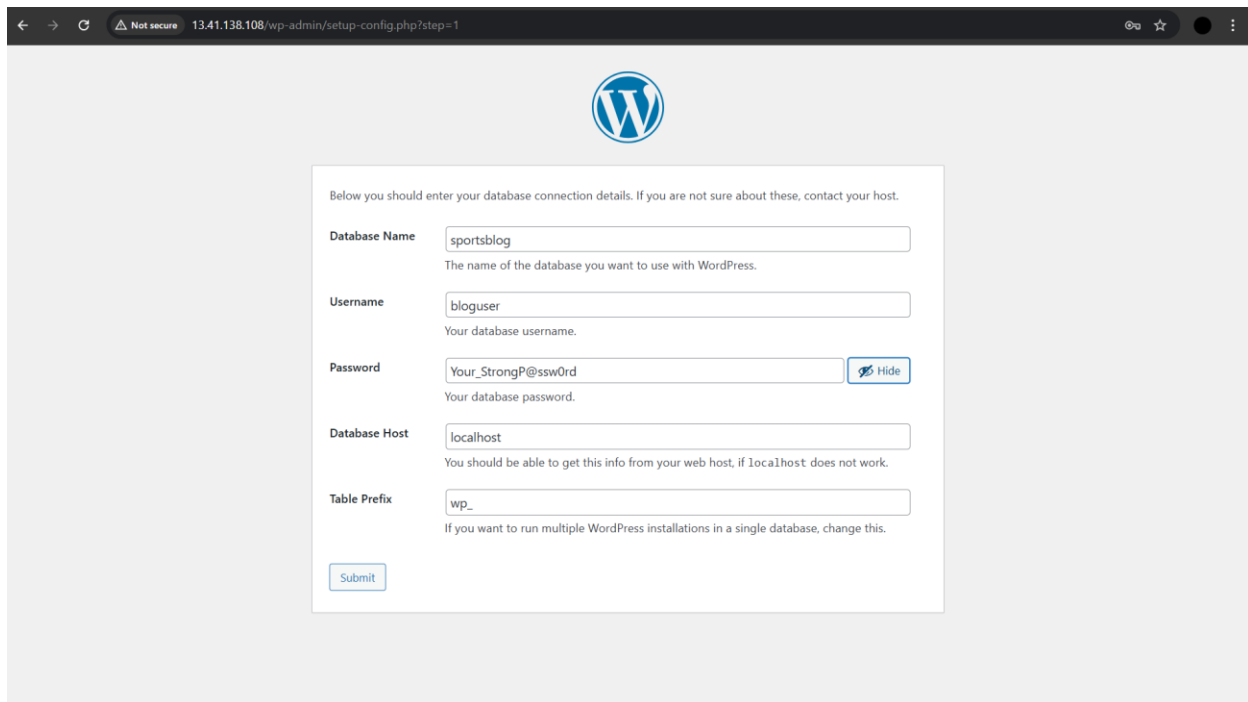
**Don't forget to replace the name of your domain.**

### Step 2 –



Click "Let's go!"

## Step 3 – Enter the details we had given earlier



The screenshot shows a web browser window with the address bar displaying "13.41.138.108/wp-admin/setup-config.php?step=1". The page features the WordPress logo at the top center. Below the logo, a text box contains the instruction: "Below you should enter your database connection details. If you are not sure about these, contact your host." The form includes five input fields: "Database Name" with the value "sportsblog", "Username" with "bloguser", "Password" with "Your\_StrongP@ssw0rd" (and a "Hide" button), "Database Host" with "localhost", and "Table Prefix" with "wp\_". Each field is accompanied by a small explanatory text. A "Submit" button is located at the bottom left of the form.

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**  [Hide](#)  
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](#)

**Step 4 –** A login page will showup enter your Username and Password and start Using WordPress

**Step 5 –** Edit all you want, the way you want in WordPress



# Phase 3 – Linking With DNS

## Step 1 – Create a hosted zone using Route 53

### Hosted zones (1)

[View details](#)[Edit](#)[Delete](#)[Create hosted zone](#)

Automatic mode is the current search behavior optimized for best filter results. [To change modes go to settings.](#)

< 1 >

	Hosted zone name	Type	Created by	Record count	Description	Hosted zone ID
	<a href="#">sportsblog.site</a>	Public	Route 53	4	-	Z04630501J5L4B...

## Step 2 – Create the below A type and CNAME type of records

### Records (4) [Info](#)

[Delete record](#)[Import zone file](#)[Create record](#)

Automatic mode is the current search behavior optimized for best filter results. [To change modes go to settings.](#)

[Type](#)[Routing p...](#)[Alias](#)

< 1 >

<input type="checkbox"/>	Record ...	Type	Routin...	Differ...	Alias	Value/Route traffic to	TTL (s...	Health ...	Eval
<input type="checkbox"/>	sportsblo...	A	Simple	-	No	13.41.138.108	300	-	-
<input type="checkbox"/>	sportsblo...	NS	Simple	-	No	ns-238.awsdns-29.com. ns-697.awsdns-23.net. ns-1824.awsdns-36.co.uk. ns-1442.awsdns-52.org.	172800	-	-
<input type="checkbox"/>	sportsblo...	SOA	Simple	-	No	ns-238.awsdns-29.com. awsd...	900	-	-
<input type="checkbox"/>	www.spor...	CNAME	Simple	-	No	sportsblog.site	300	-	-

## Step 3 - Copy the Route traffic to your Nameservers for DNS.

Records (4) [Info](#)



Delete record

Import zone file

Create record

Automatic mode is the current search behavior optimized for best filter results. [To change modes go to settings.](#)

Q Filter records by property or value

Type ▼

Routing p... ▼

Alias ▼

< 1 >



<input type="checkbox"/>	Record ... ▼	Type ▼	Routin... ▼	Differ... ▼	Alias ▼	Value/Route traffic to ▼	TTL (s... ▼	Health ... ▼	Ev:
<input type="checkbox"/>	sportsblo...	A	Simple	-	No	13.41.138.108	300	-	-
<input type="checkbox"/>	sportsblo...	NS	Simple	-	No	ns-238.awsdns-29.com. ns-697.awsdns-23.net. ns-1824.awsdns-36.co.uk. ns-1442.awsdns-52.org.	172800	-	-
<input type="checkbox"/>	sportsblo...	SOA	Simple	-	No	ns-238.awsdns-29.com. awsd...	900	-	-
<input type="checkbox"/>	www.spor...	CNAME	Simple	-	No	sportsblog.site	300	-	-

## Step 4 - Change the Nameservers on GoDaddy

Domains ▼

Portfolio

DNS

Transfers

Services ▼

Settings ▼

Activity Log

DNS RecordsForwardingNameserversPremium DNSHostnamesDS Records

Nameservers determine where your DNS is hosted and where you add, edit or delete your DNS records.

Using custom nameservers

Change Nameservers

Nameservers ?

ns-238.awsdns-29.com

ns-697.awsdns-23.net

ns-1824.awsdns-36.co.uk

ns-1442.awsdns-52.org

## Phase 4 – SSL/TLS

### Step 1 - Install Certbot

```
sudo apt update
```

```
sudo apt install certbot python3-certbot-apache -y
```

### Step 2 - Restart Your Web Server

```
sudo systemctl restart apache2
```

### Step 3 - Set Up Auto-Renewal

```
sudo certbot renew --dry-run
```

After the installation of the Certbot, I noticed that when I open my site through the IP address, it shows that the site is not secure, and when I open through my domain name, it shows secure, so for that, I implemented another command which does the function of redirection. So basically, if I enter my IP, it will direct me to my domain-entered version of the site so that even if IP or domain name is entered, the site stays secure for the users. I think that it is an good method to be followed and the commands for it is below.

### Step 4 –

```
sudo nano /etc/apache2/sites-available/000-default.conf
```

**Step 5** - Inside the <VirtualHost \*:80> block, add:

```
Redirect 301 / https://sportsblog.site/
```

Save and exit (CTRL + X, then Y, then Enter).

Don't forget to change your domain name.

**Step 6 –**

```
sudo systemctl restart apache2
```

In normal cases, this will do the redirecting if this doesn't work also check inside "sudo nano /etc/apache2/sites-available/default-ssl.conf" and Modify the <VirtualHost \*:443> block to:

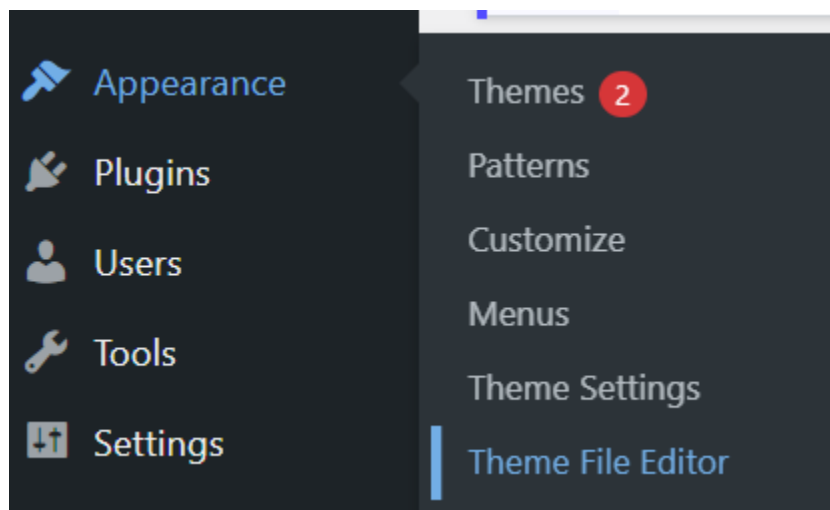
```
<VirtualHost *:443>
    ServerAdmin webmaster@localhost
    DocumentRoot /var/www/html
    SSLEngine on
    SSLCertificateFile /etc/letsencrypt/live/sportsblog.site/fullchain.pem
    SSLCertificateKeyFile /etc/letsencrypt/live/sportsblog.site/privkey.pem

    # Redirect IP access to your domain
    <If "%{HTTP_HOST} != 'sportsblog.site'">
        Redirect 301 / https://sportsblog.site/
    </If>
</VirtualHost>
```

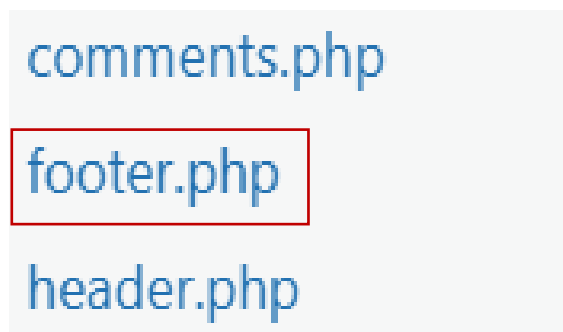
## Phase 5 – Implementation of Script

As my page is a blog page, I wanted to implement a script that should be useful for the users, so I made the “back-to-top” button, which will take the user back to the top of the page with clicks. I think this is pretty useful because users read and go below and below, and if you want to get to the top with a single click, they can. I think that it will be more useful for mobile and tablet users. So the steps to implement the same are below:-

**Step 1 – Inside WordPress Go to Appearance → Theme Editor.**



**Step 2 - Select footer.php from the right-hand side.**



**Step 3** - Scroll to the bottom of the file, just before `</body>`, and paste the following code:

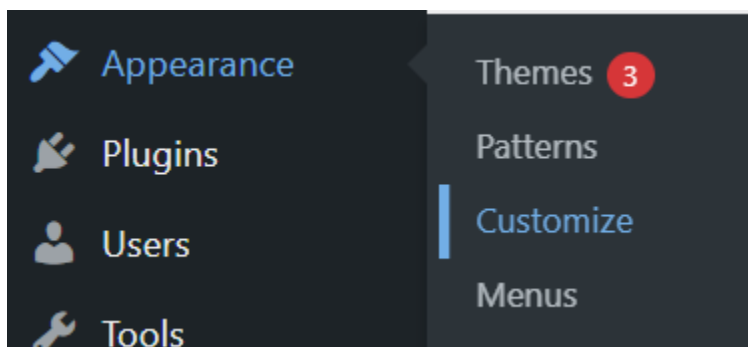
```
<!-- Scroll to Top Button -->
<button onclick="topFunction()" id="scrollBtn" title="Go to top">↑</button>

<script>
    window.onscroll = function() {scrollFunction()};

    function scrollFunction() {
        const btn = document.getElementById("scrollBtn");
        if (document.body.scrollTop > 20 || document.documentElement.scrollTop > 20) {
            btn.style.display = "block";
        } else {
            btn.style.display = "none";
        }
    }

    function topFunction() {
        window.scrollTo({top: 0, behavior: 'smooth'});
    }
</script>
```

**Step 4** - In your WordPress Admin Panel, go to **Appearance** → **Customize**.



## Step 5 - Scroll down to **Additional CSS**

Site Identity	>
Menus	>
Homepage Settings	>
Header & Footer	>
Additional CSS	>

Paste the following code:

```
#scrollBtn {
  display: none;
  position: fixed;
  bottom: 40px;
  right: 30px;
  z-index: 99;
  border: none;
  outline: none;
  background-color: #000;
  color: white;
  cursor: pointer;
  padding: 12px;
  border-radius: 50%;
  font-size: 18px;
  box-shadow: 0px 0px 10px rgba(0,0,0,0.5);
  transition: background-color 0.3s ease;
}

#scrollBtn:hover {
  background-color: #333;
}
```

## **Step 6** – Publish the Changes.

Now, a back-to-top button will be shown on the site.



## REFERENCES

1. <https://docs.aws.amazon.com/ec2/>
2. <https://wordpress.org/>
3. <https://certbot.eff.org/>
4. <https://youtu.be/1hpHn1uOEel?si=XMKYIGsxuC1O5bGE>