Assignment 2

Cloud Server Project

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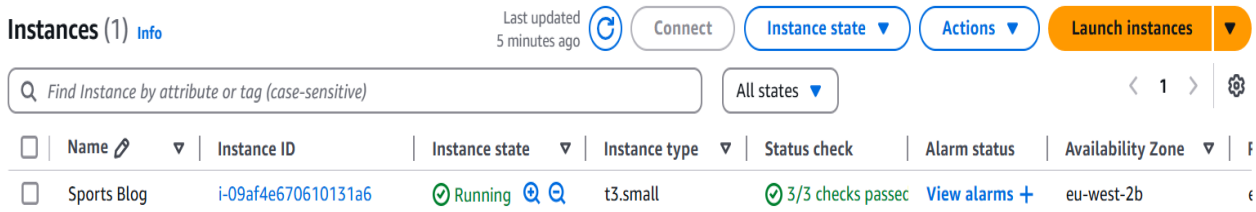
IP ADDRESS - 13.41.138.108

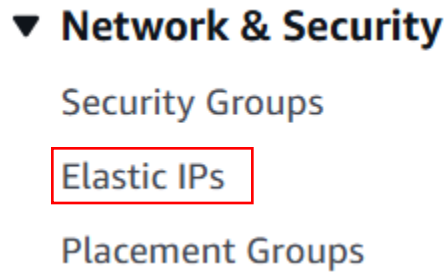
DNS - https://sportsblog.site

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

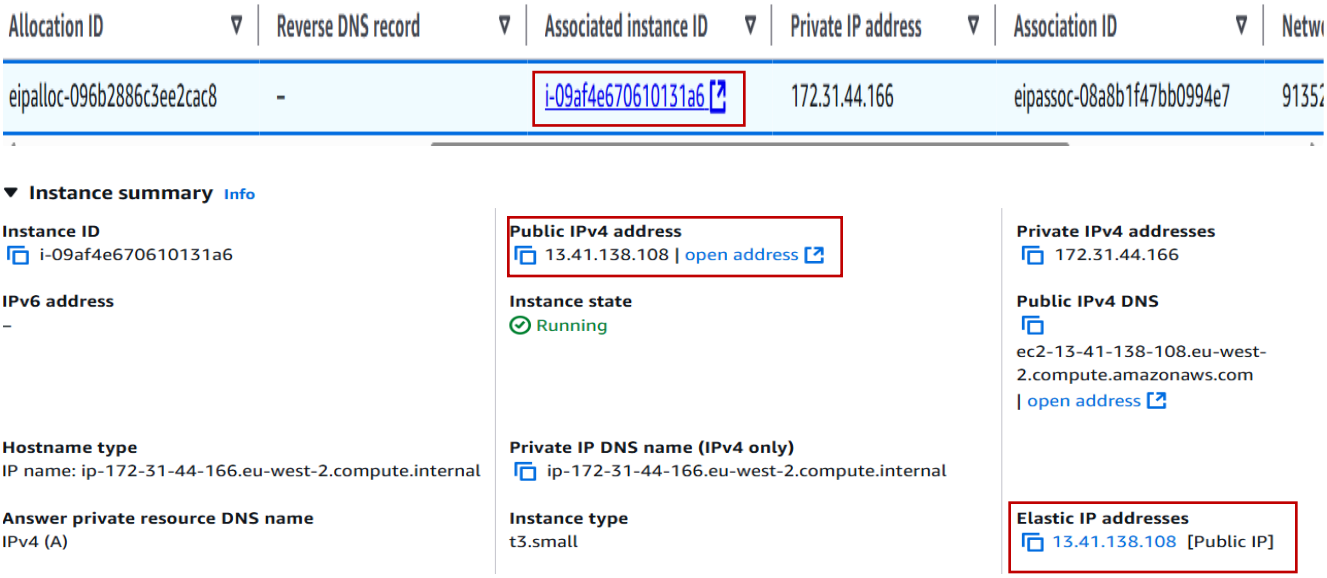
Step 1 – Launch an Ubuntu Instance



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



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



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:

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

Step 8 - Install PHP and MySQL Connector

```
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:

```
ubuntu@ip-172-31-44-166:~$ sudo mysql_secure_installation
```

Step 9 - Download and install WordPress:

Do the following commands one by one:

```
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:

```
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.

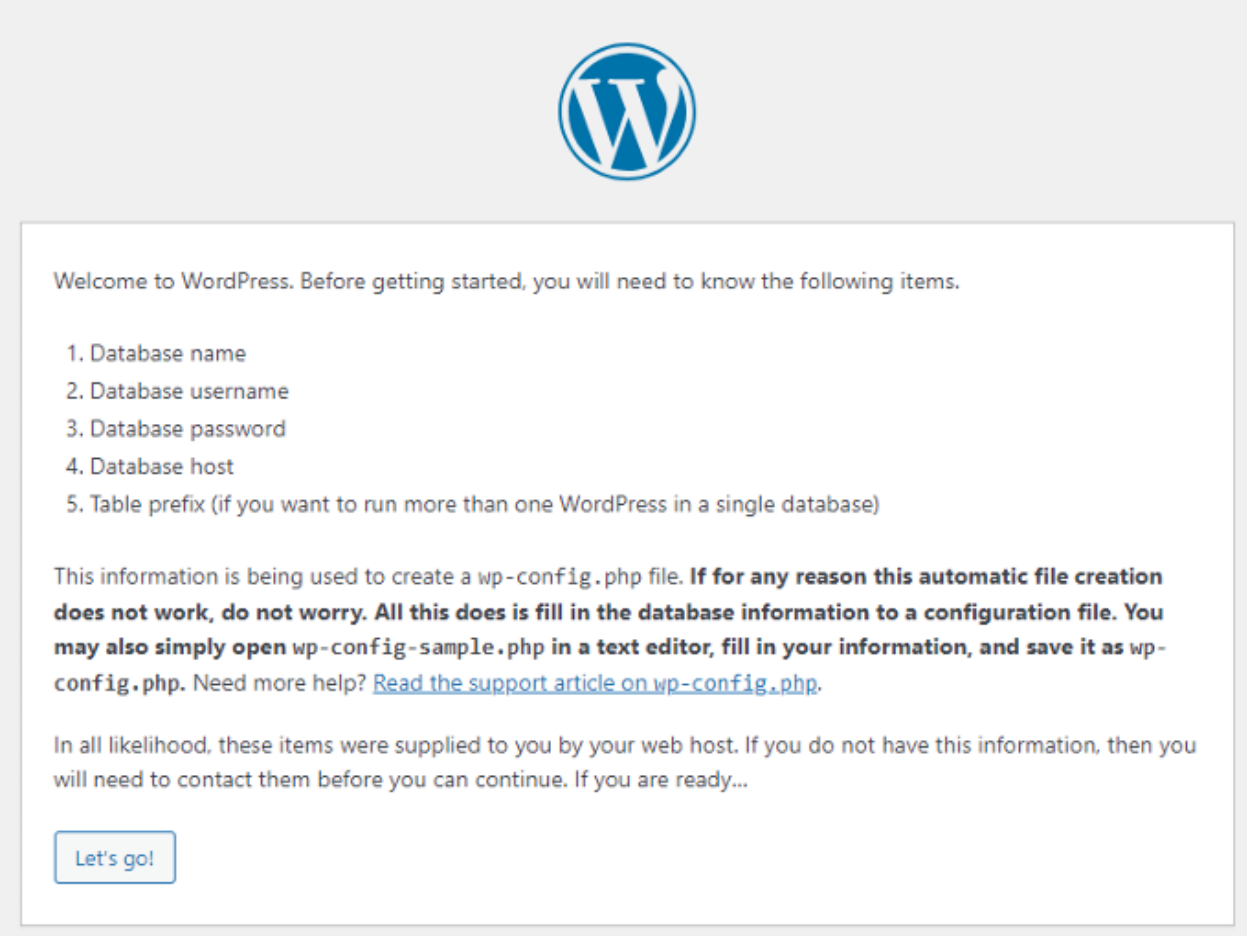
Phase 2 – Setting up WordPress

Step 1 –

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

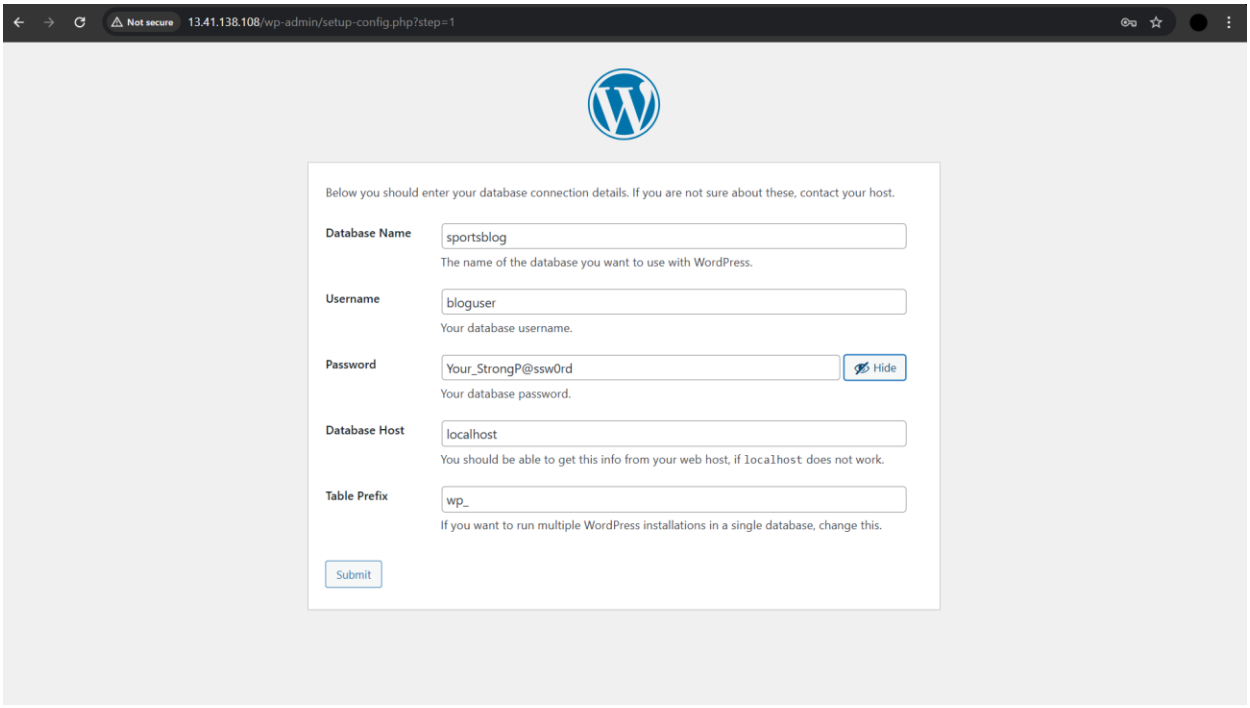
Don’t forget to replace the name of your domain.

Step 2 –



Click “Let’s go!

Step 3 – Enter the details we had given earlier

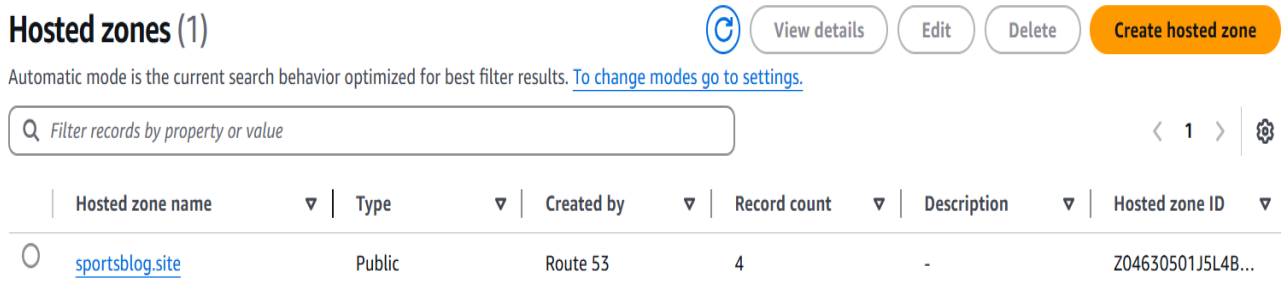


Step 4 – A login page will showup enter your Username and Password and start Using WordPress

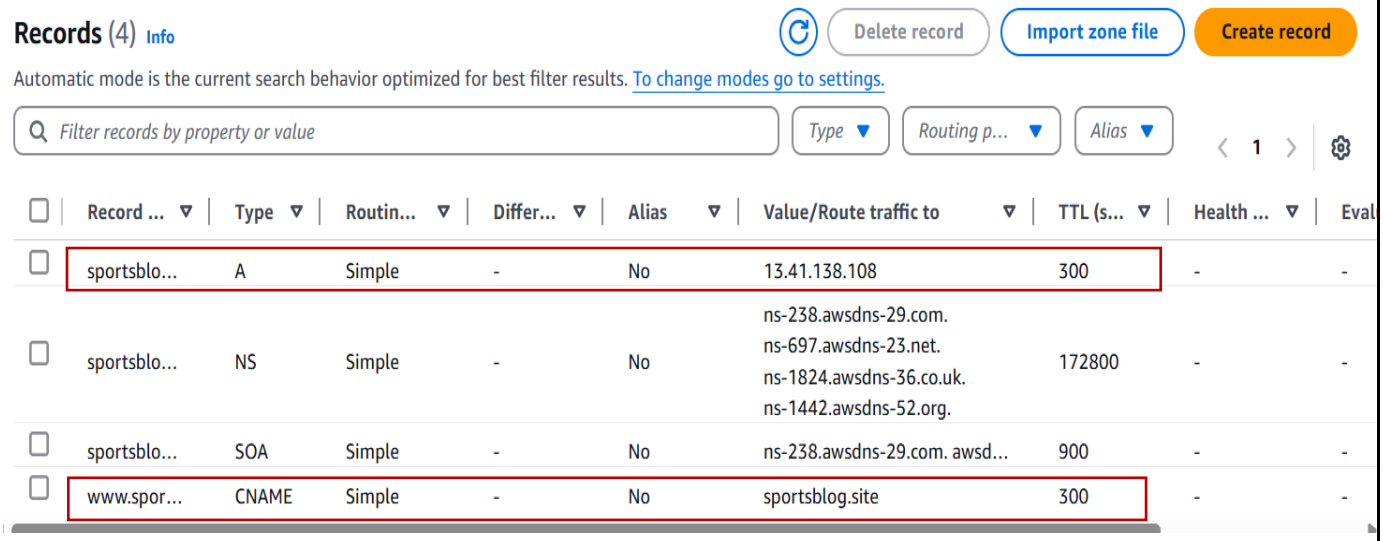
Step 5 – Edit all you want, the way you want in WordPress

Phase 3 – Linking With DNS

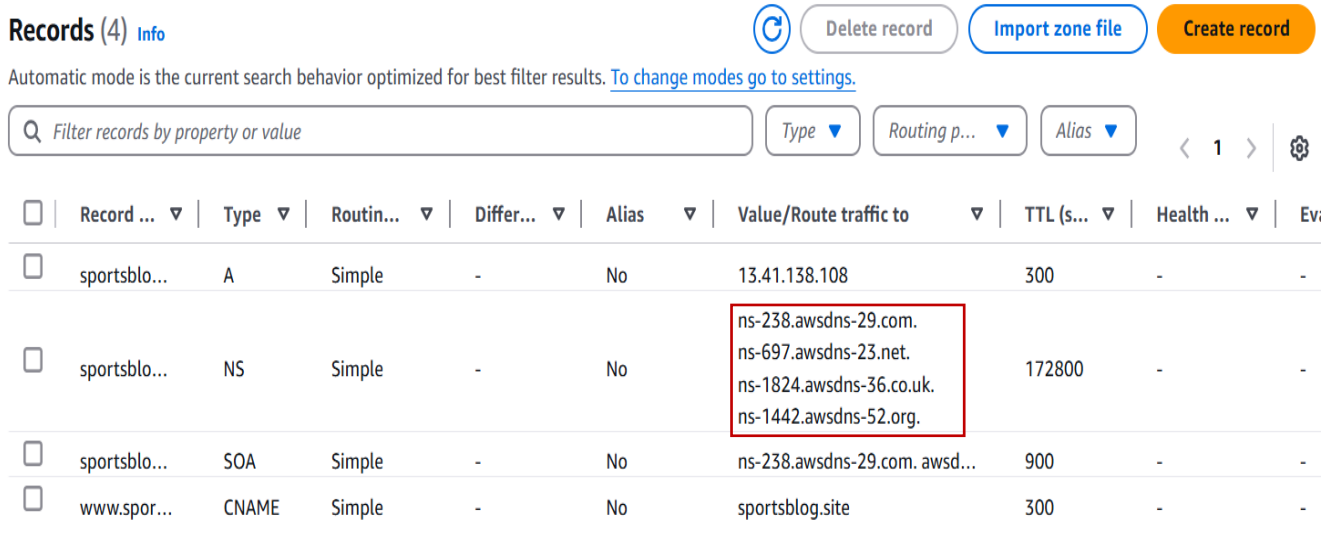
Step 1 – Create a hosted zone using Route 53



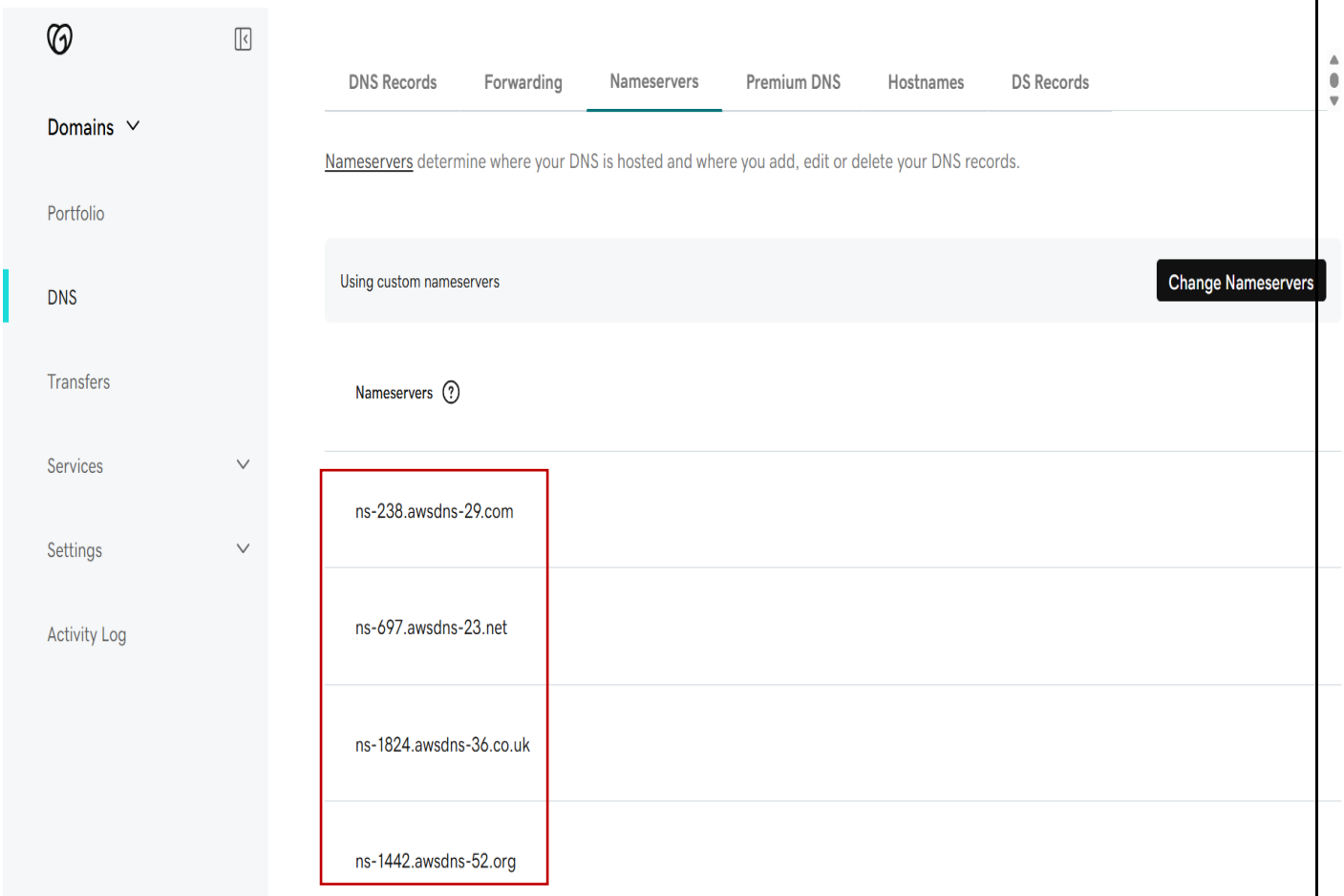
Step 2 – Create the below A type and CNAME type of records



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



Step 4 - Change the Nameservers on GoDaddy



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
```

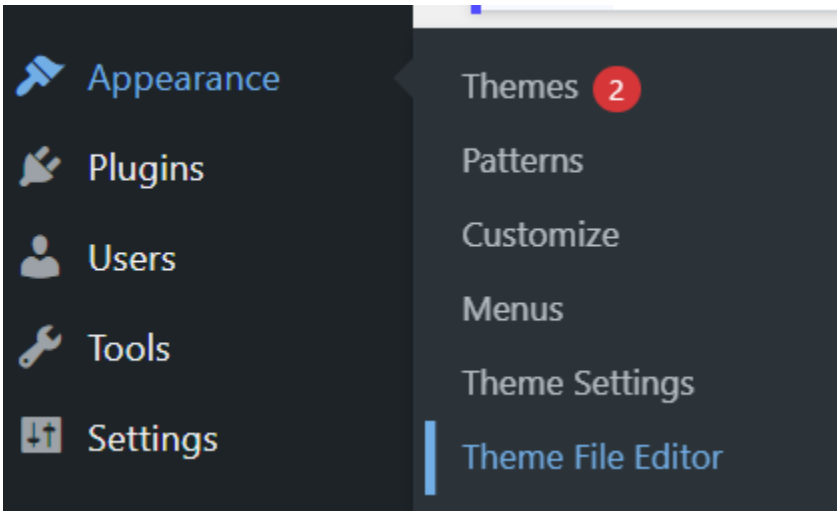
In normal cases, this will do the redirecting if this doesn’t work also check inside “sudo nano /etc/apache2/sites-available/default-ssl.conf” and Modify the <VirtualHost *:443> block to:

```
<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>
```

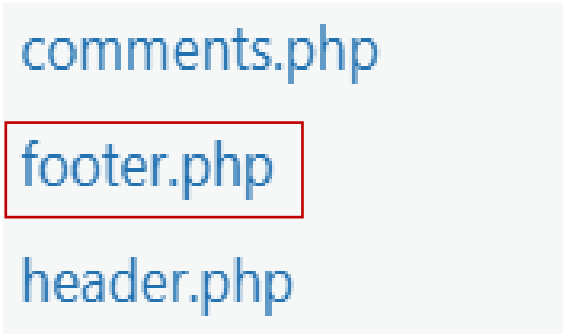
Phase 5 – Implementation of Script

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**.



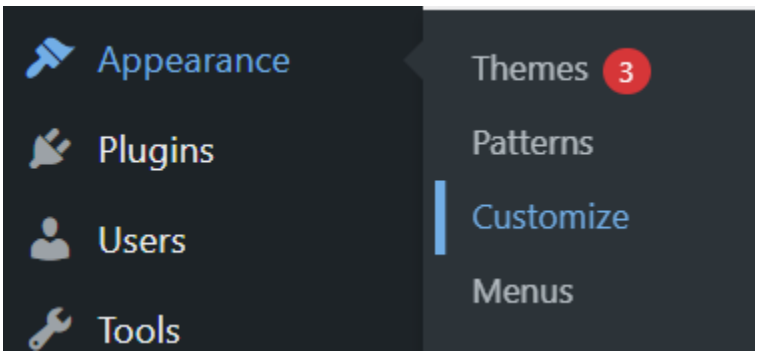
Step 2 - Select footer.php from the right-hand side.



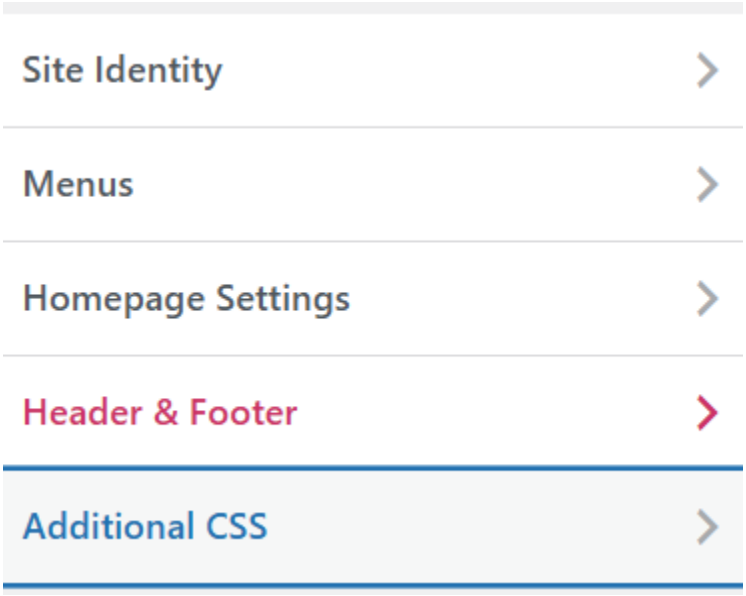
Step 3 - Scroll to the bottom of the file, just before </body>, and paste the following code:

```
<!-- 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**



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/1hpHn1uOEeI?si=XMKYIGsxuC1O5bGE