Project: Deploy a Custom Apache Web Server on Amazon EC2

Description:
In this project, you will launch an **Amazon EC2 instance** using **Amazon Linux 2023** and configure it as a web server with **Apache (httpd)**. You will create a **customized webpage** with a visually appealing design. The setup will be automated using **User Data**, ensuring that the web server and webpage are configured automatically upon instance startup.

Steps to Complete the Project

Step 1: Launch an Amazon EC2 Instance

- Sign in to your **AWS Management Console**.
- Navigate to **EC2 Dashboard**.
- Click on **Launch Instance**.
- Configure the following:
  - **Name:** `Custom-Apache-Web-Server`
  - **AMI:** Amazon Linux 2023
  - **Instance Type:** `t2.micro` (Free Tier eligible)
  - **Key Pair:** Proceed without a key pair
  - **Network Settings:**
    - Ensure **Auto-assign Public IP** is enabled
    - **Create a new security group** with the following rules:
      - **Allow HTTP (80) from Anywhere (`0.0.0.0/0`, `::/0`)**
      - **Allow SSH (22) from your IP**
  - **User Data:** Copy and paste the script below (see next section).
- Click **Launch Instance**.

Step 2: Configure User Data for Automatic Setup

To automate the installation of Apache and deploy a custom webpage, add the following script to **User Data** during EC2 instance launch:

```bash
#!/bin/bash
# Update package list and install Apache
dnf update -y
dnf install -y httpd

# Start and enable Apache service
systemctl start httpd
systemctl enable httpd

# Set permissions for Apache root directory
```

```
chown -R ec2-user:ec2-user /var/www/html

# Create a custom index.html page
cat <<EOF > /var/www/html/index.html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Welcome to My Custom Apache Server</title>
    <style>
        body {
            font-family: Arial, sans-serif;
            background-color: #f4f4f4;
            text-align: center;
            padding: 50px;
        }
        .container {
            background: white;
            padding: 20px;
            border-radius: 10px;
            box-shadow: 0px 0px 10px rgba(0, 0, 0, 0.1);
            display: inline-block;
        }
        h1 {
            color: #333;
        }
        p {
            color: #666;
        }
    </style>
</head>
<body>
    <div class="container">
        <h1>Welcome to My Custom Apache Web Server!</h1>
        <p>Hosted on an Amazon Linux 2023 EC2 Instance.</p>
        <p>This page was deployed automatically using AWS User Data.</p>
    </div>
</body>
</html>
EOF

# Restart Apache to apply changes
systemctl restart httpd
```

```

## Step 3: Verify the Web Server is Running

- Go to the **EC2 Dashboard** and find your instance.
- Copy the **Public IPv4 Address**.
- Open a web browser and go to `http://<your-public-ip>`.
- You should see your custom webpage! 🎉
```