CIS 92 Cloud DevOps AWS Lab Automate EC2 Setup with User Data

Lab Objective: Launch an EC2 instance on AWS and use User Data to install and start a simple web server automatically

In this lab, students will learn how to automate the initial setup of an Amazon EC2 instance using User Data scripts. By the end of the lab, students will be able to:

- Launch an EC2 instance using the AWS Management Console
- Configure User Data to automate software installation and system setup
- Deploy and start a simple Apache web server without manual intervention
- Access and verify the running web server using a public IP address

Lab Instructions:

Step 1: Log in to AWS

- Go to the **AWS Management Console**: https://aws.amazon.com/
- In the **Search bar**, type **EC2** and select **EC2** from the results.

Step 2: Launch an EC2 Instance

- Click **Launch Instance**.
- **Name your instance** (e.g., MyWebServer).
- **Choose an Amazon Machine Image (AMI):**
  - Select **Amazon Linux 2023** (Free-tier eligible).
- **Choose an Instance Type:**
  - Select **t2.micro** (Free-tier eligible).
- **Configure Key Pair:**
  - Click **Create new key pair** (or use an existing one).
  - Name it (e.g., MyEC2Key)
    - Remember the name of the key pair file as it will be needed in future steps
  - Click **Create key pair** (this will download a .pem file for SSH access).
- **Configure Network Settings:**
  - Click **Edit security group**.
  - Ensure the following inbound rules exist:
  - **SSH (Port 22)** → Your IP address (for secure access).
  - **HTTP (Port 80)** → Anywhere (to allow web traffic).

Step 3: Add User Data (Automated Setup Script)

- Expand the **Advanced details** section.
- Scroll down to **User data** and paste the following script:

```bash
#!/bin/bash
yum update -y
yum install -y httpd
systemctl start httpd
systemctl enable httpd
echo "<h1>Welcome to My EC2 Web Server!</h1>" >
/var/www/html/index.html
```

What this does:

- Updates the system.
- Installs **Apache Web Server**.
- Starts and enables the web server.
- Creates a simple HTML page (index.html).

Step 4: Launch and Test the Instance

- Click **Launch Instance** and wait for it to start.
- Go to the **Instances** page.
- Copy the **Public IPv4 Address** of your instance.
- Open a web browser and go to:

  http://YOUR_PUBLIC_IP (enter your instance's Public IPv4 address)

- You should see:

  "Welcome to My EC2 Web Server!"

Screenshot
- Take a screenshot of your web page and attach it to your Canvas assignment before submission