**Course End Project** - **Automating Infrastructure using Terraform**

**Problem Statement:**

**Use Terraform to build a virtual machine and install other required automation tools in it.**

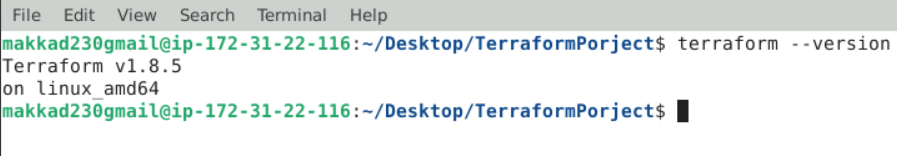
* Launch an EC2 instance using Terraform
* Connect to the instance
* Install Jenkins, Java and Python in the instance

**Tools required:** Terraform, AWS account with security credentials, Keypair

**Solution:**

**Step 1: Terraform Core is installed on the Lab VM:**

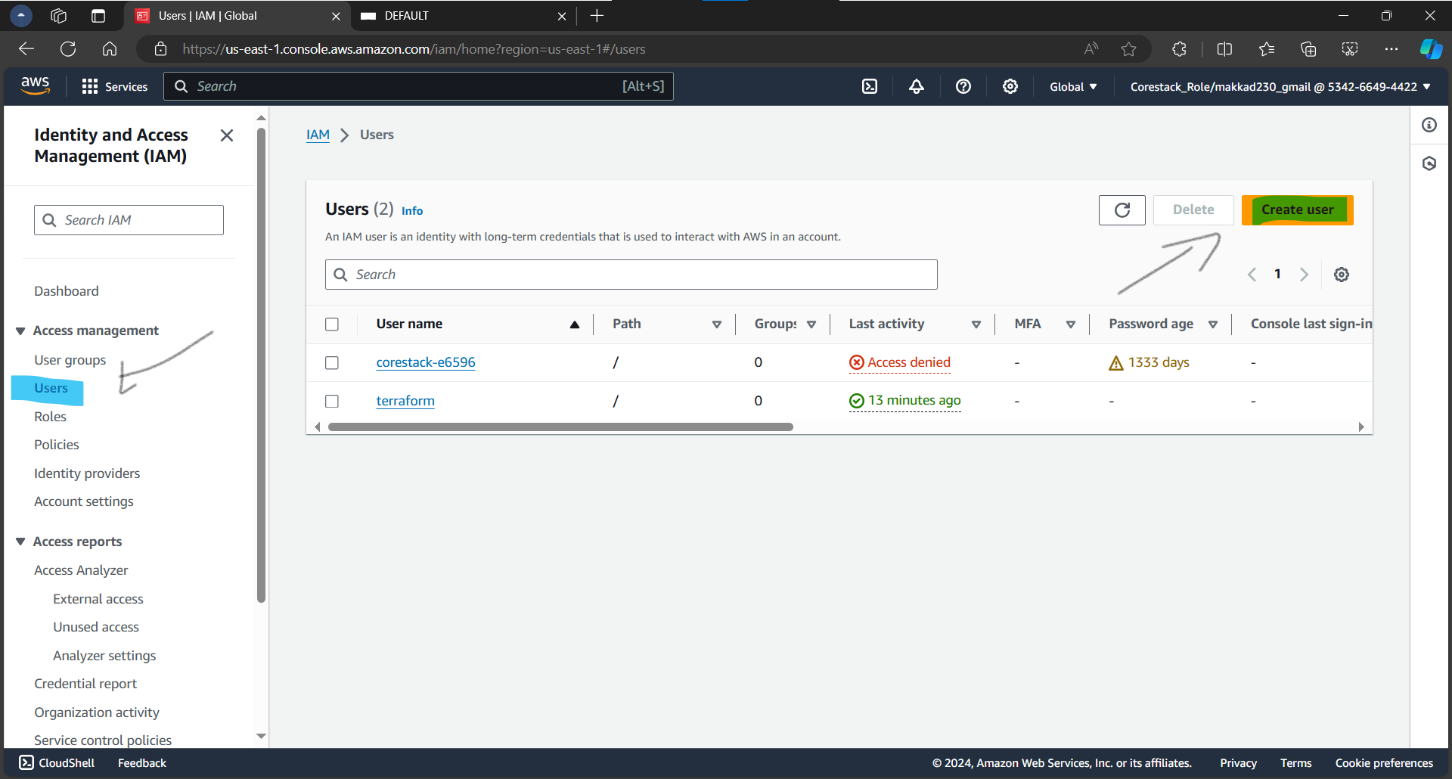
**# terraform --version**

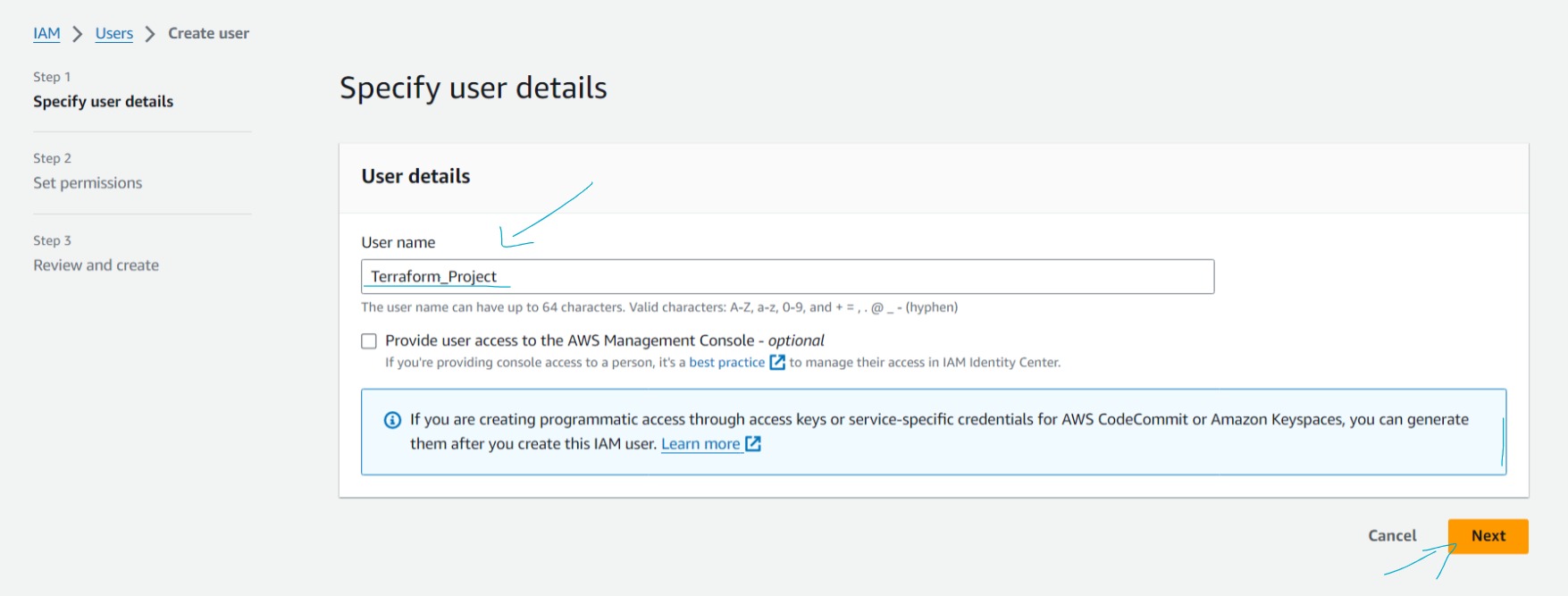
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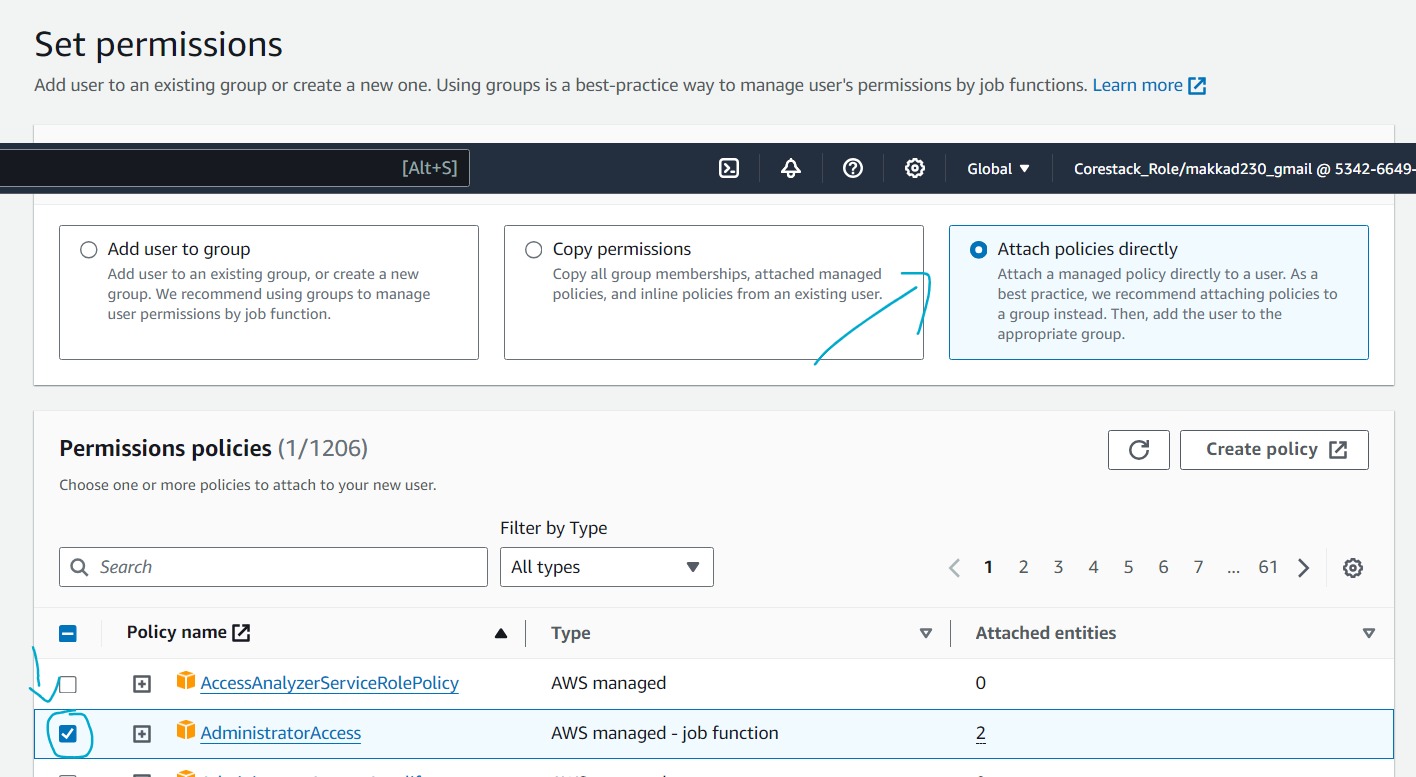
**Step 2: Create AWS user and security credentials:**

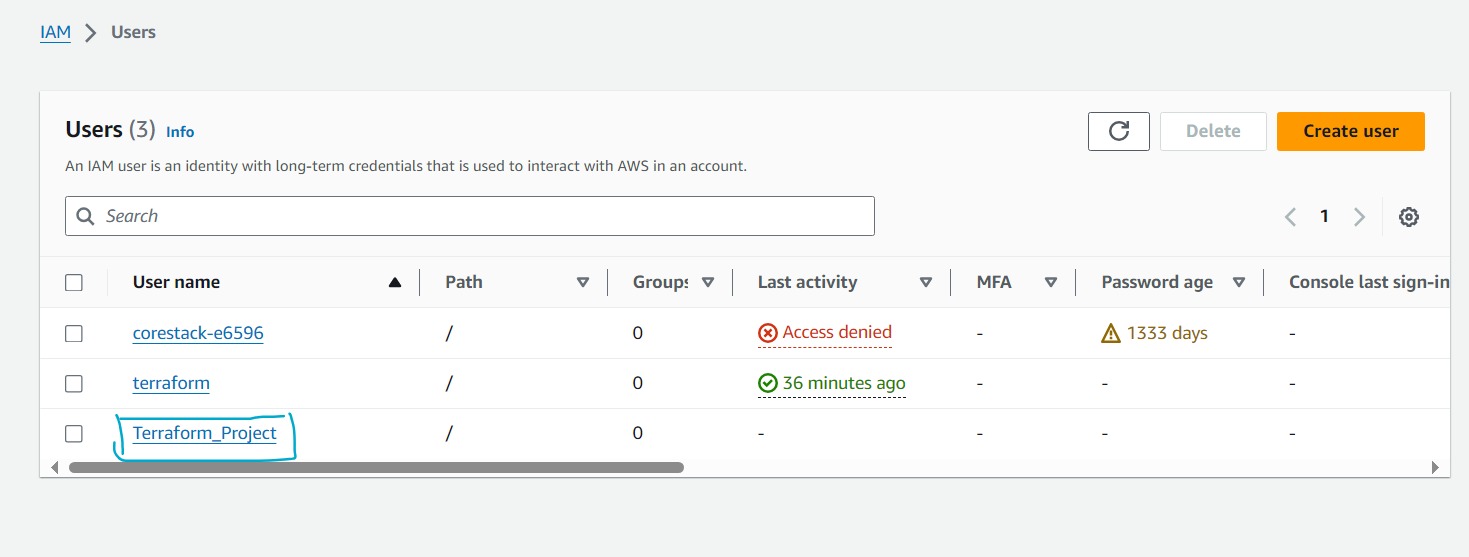
**Creating User:**

1. **In the AWS dashboard, search for IAM and then select it.**
2. **One the left navigation panel select Users**
3. **Click on Create user.**
4. **Provide a Username**
5. **Click Next**
6. **Choose Attach policies directly Permission option**
7. **Choose AdministratorAccess in the Permission Policies**
8. **Click Next then Click Create user**



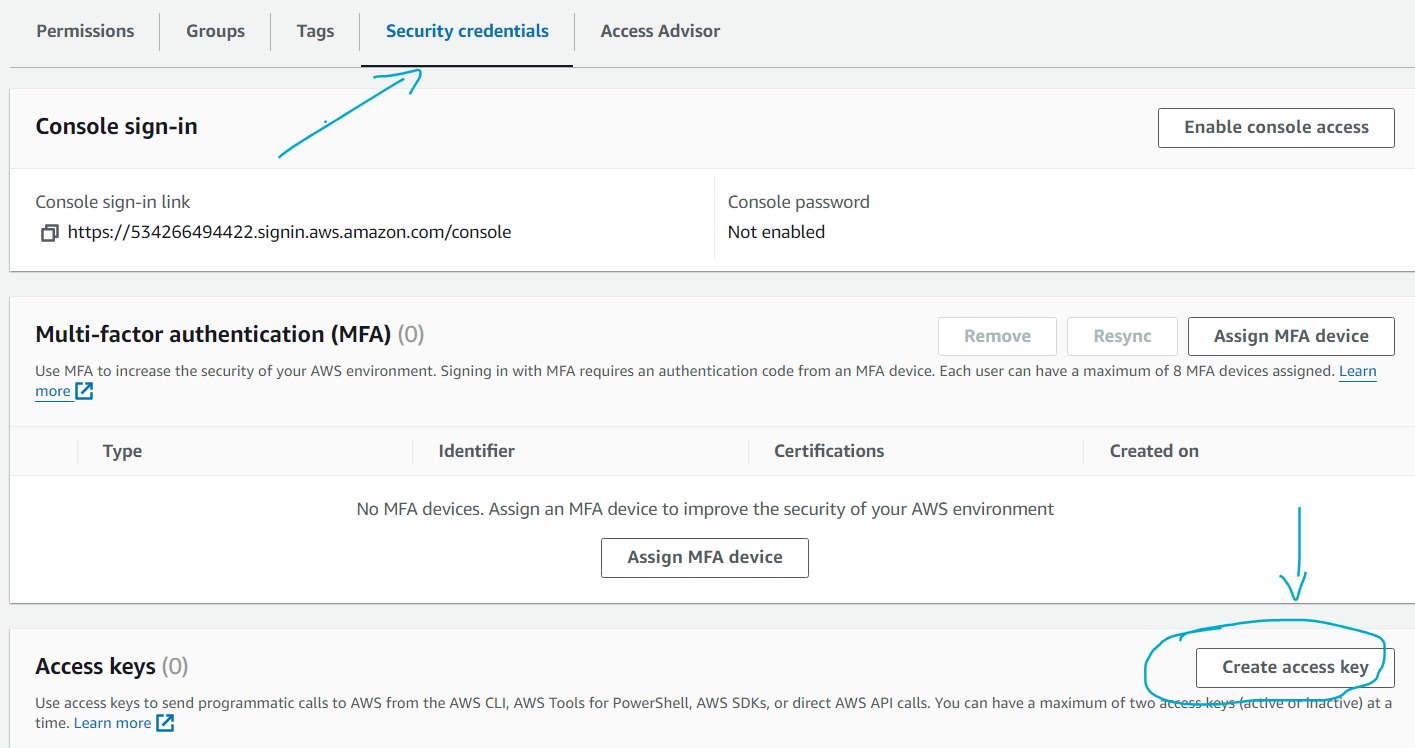


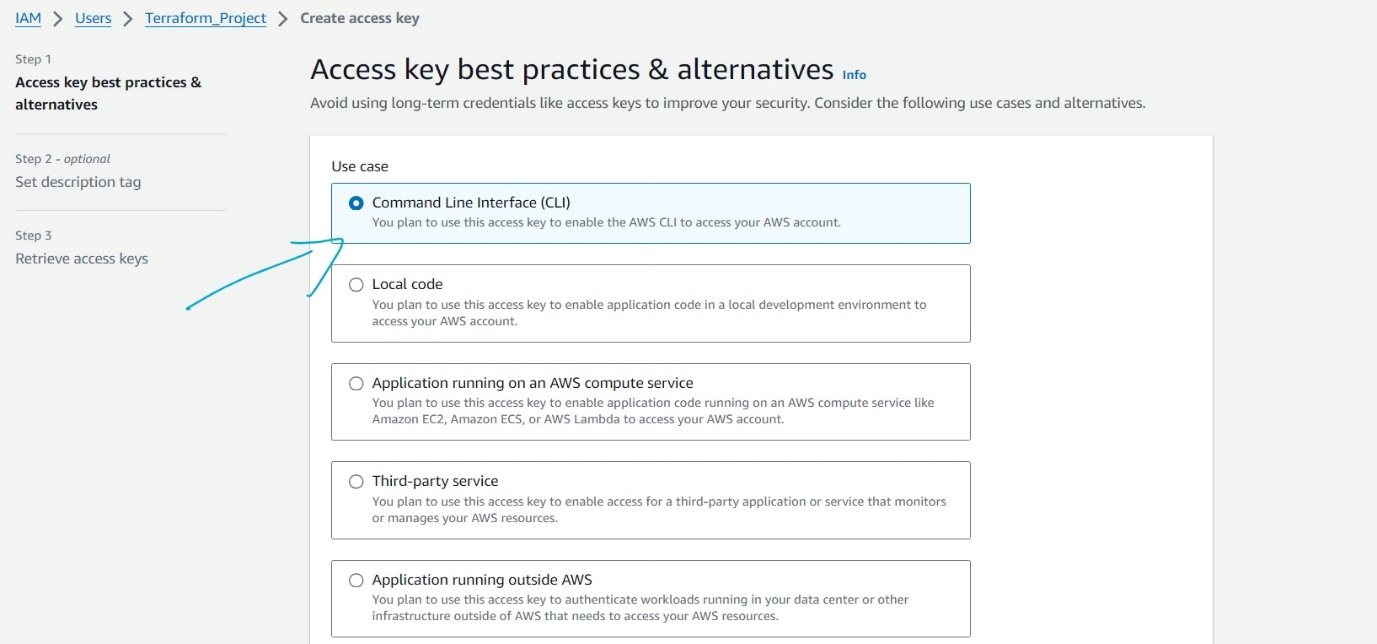


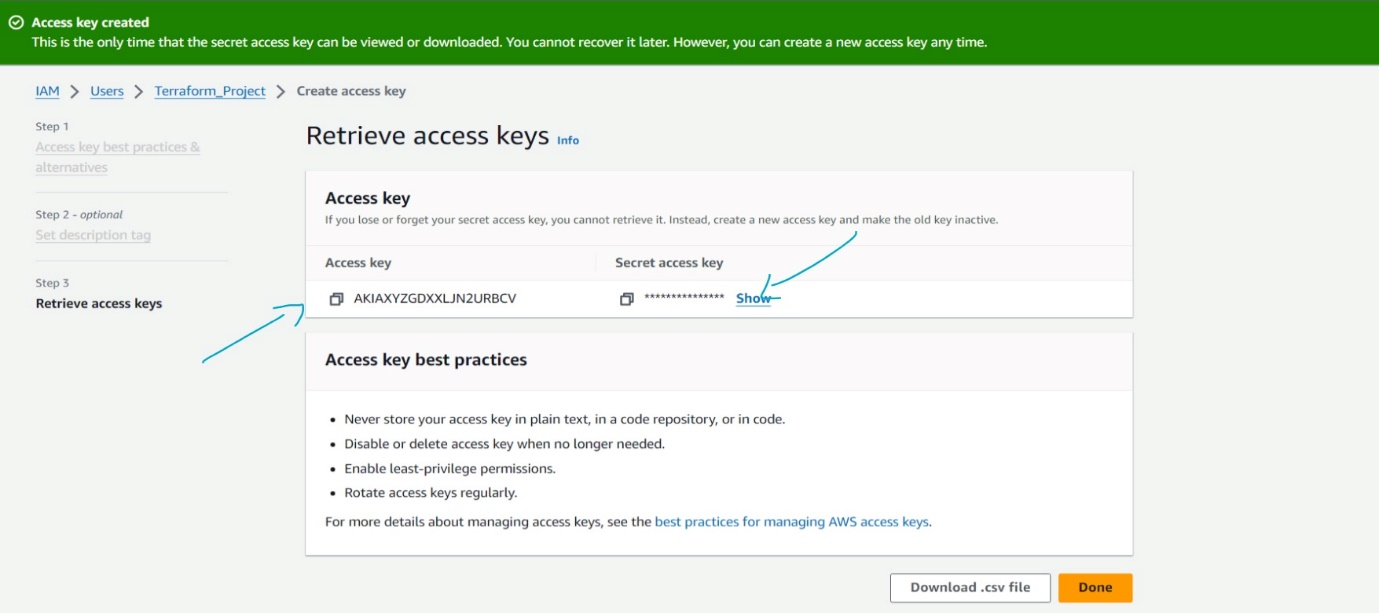


**Create Security Credentials**

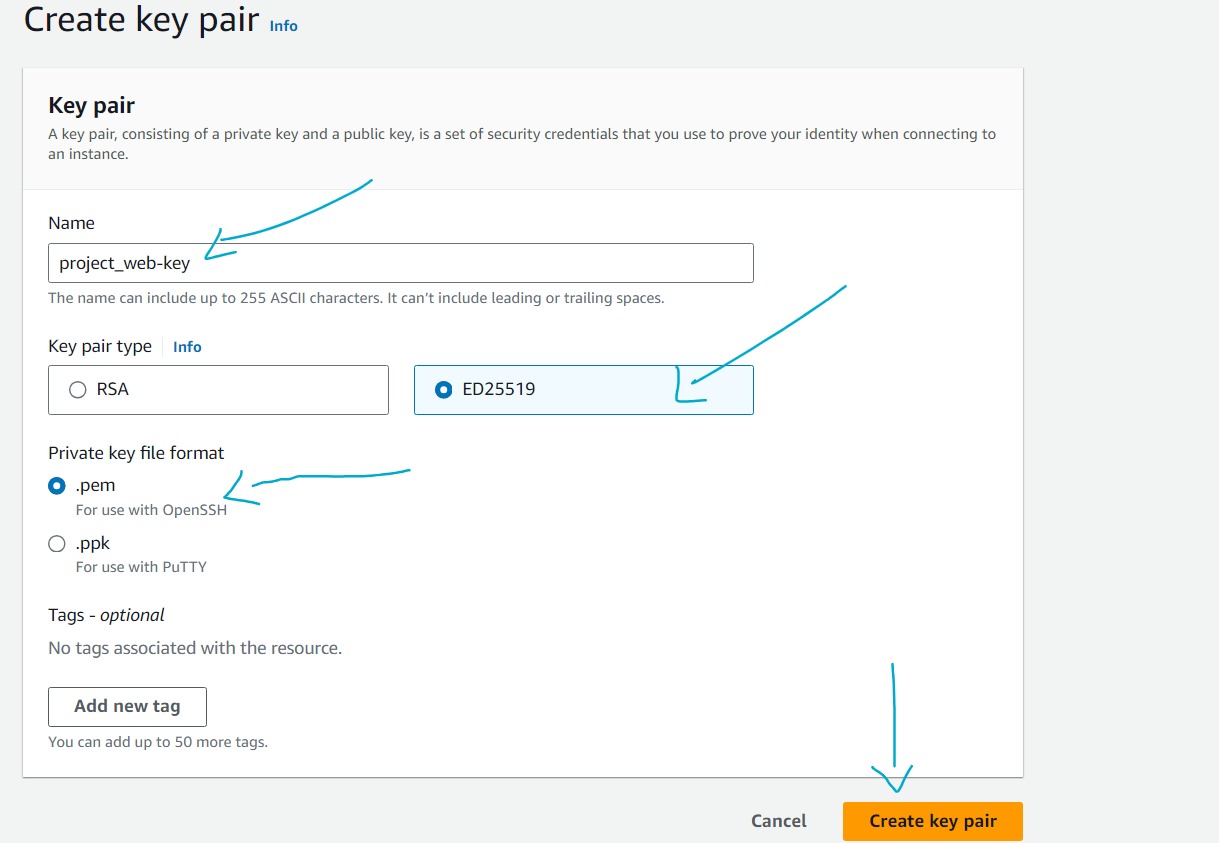
1. **Click on username Terraform\_Project**
2. **Click on Security credentials tab**
3. **Scroll and create Access Keys**
4. **Choose command line (CLI)**
5. **Check the box “I understand the above”**
6. **Create access Key**

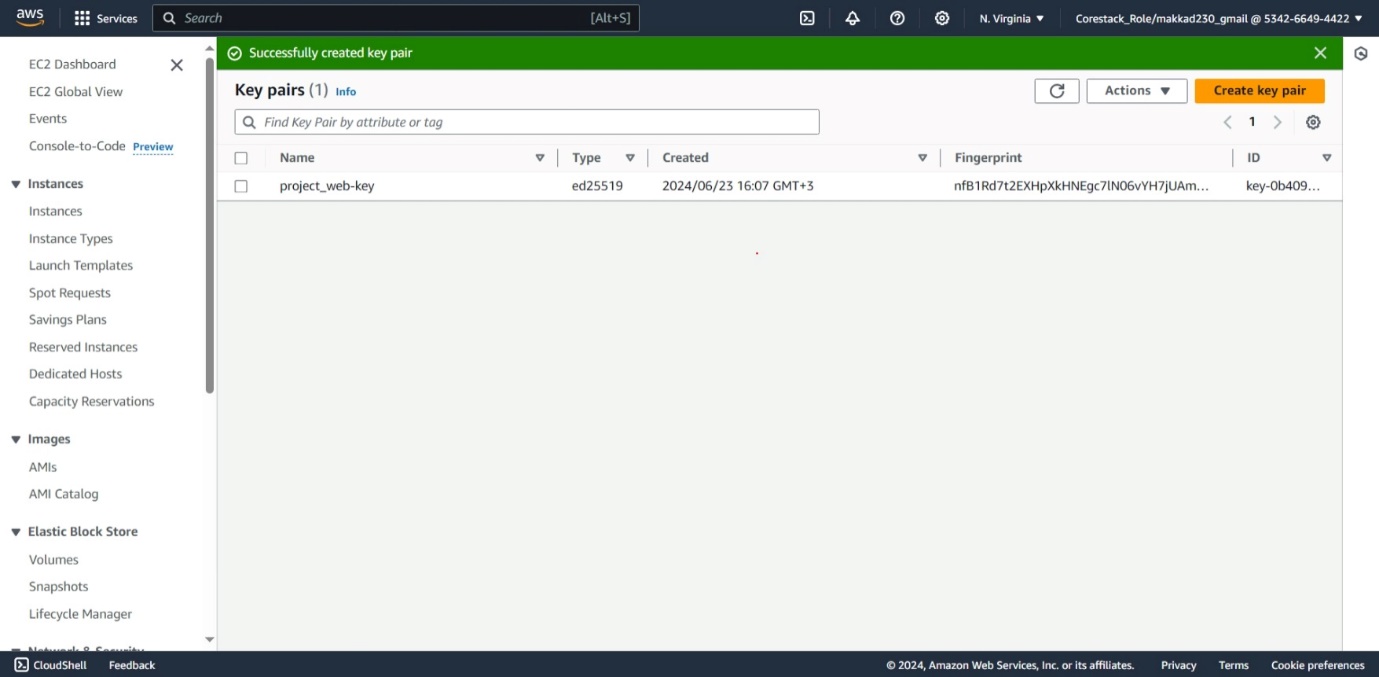
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**Step 4: Create a key pair in AWS, we will use this keypair to connect to the ec2 instance**

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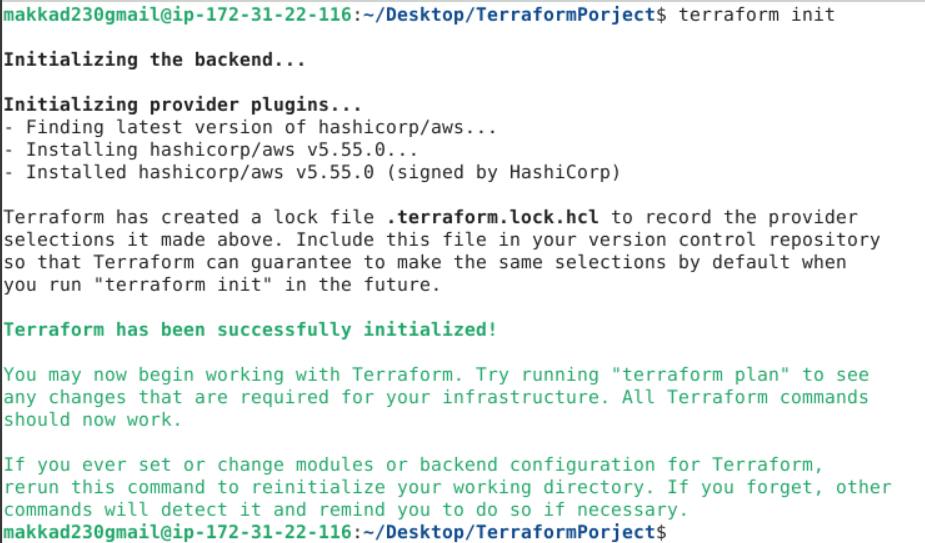
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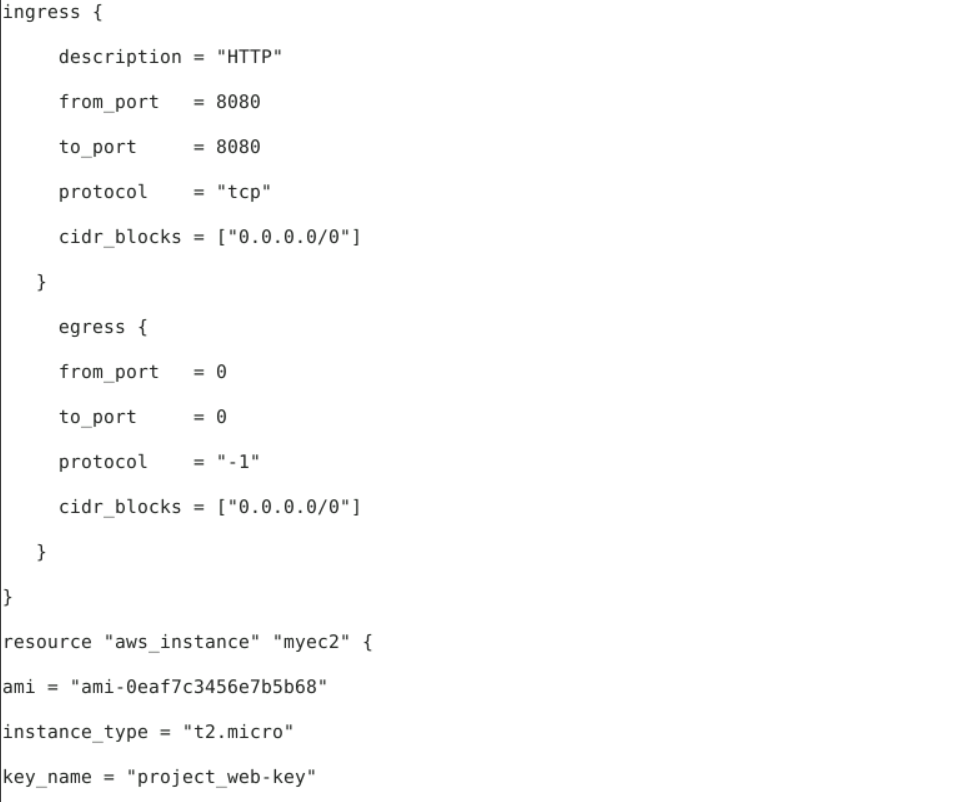
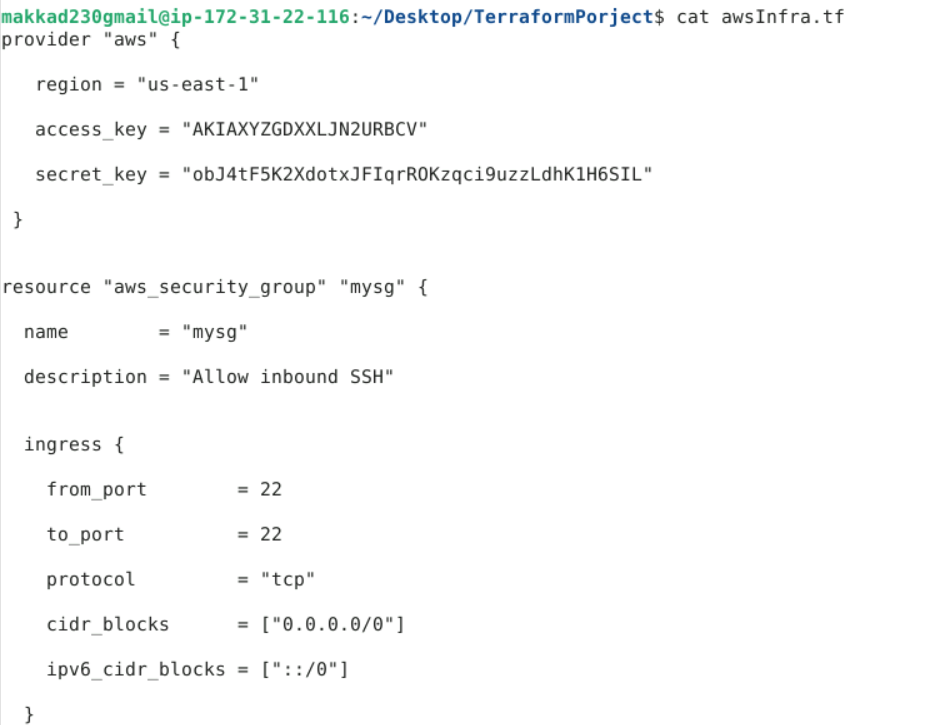
**Step 5: Prepare the terraform configuration file with provider and resource blocks**

**In the configuration file , we will use:**

* **Provider : aws**
* **Resource: security\_group**
* **Resource: aws\_instance**
* **Resource: aws\_network\_interface\_sg\_attachment**

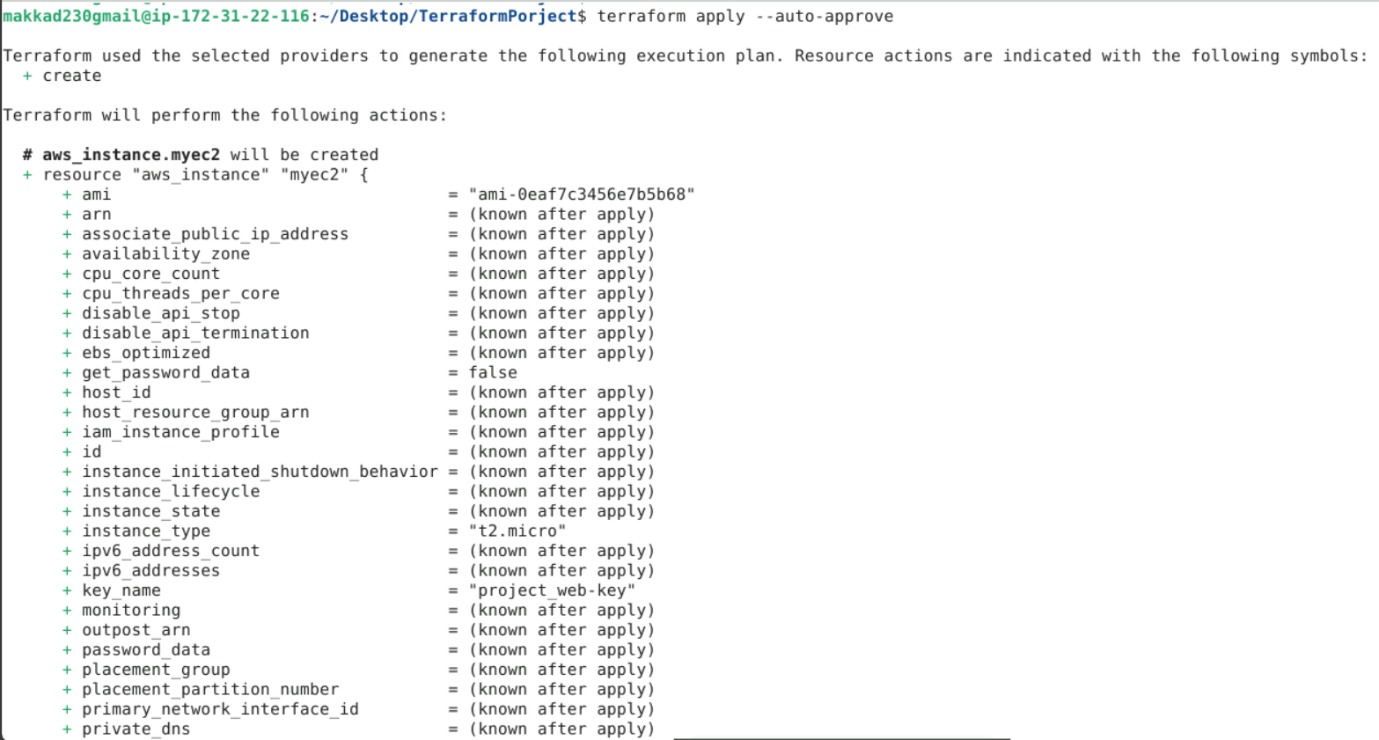
**Final code:**

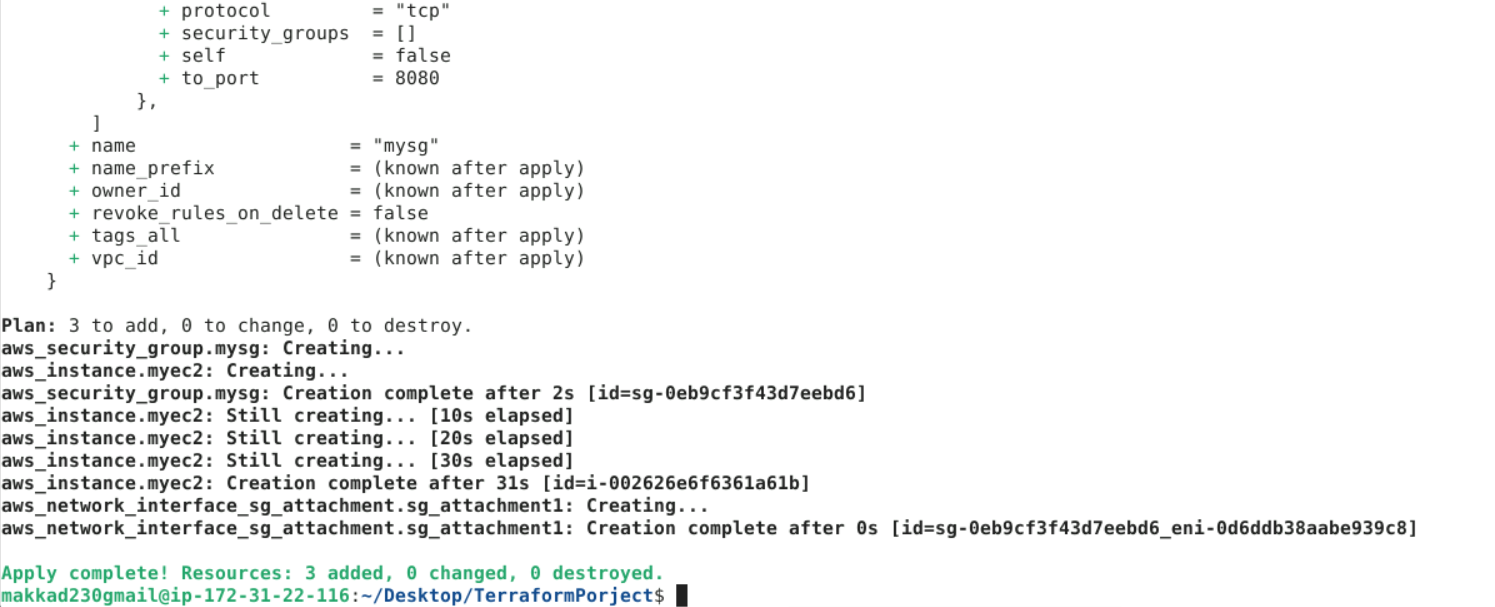
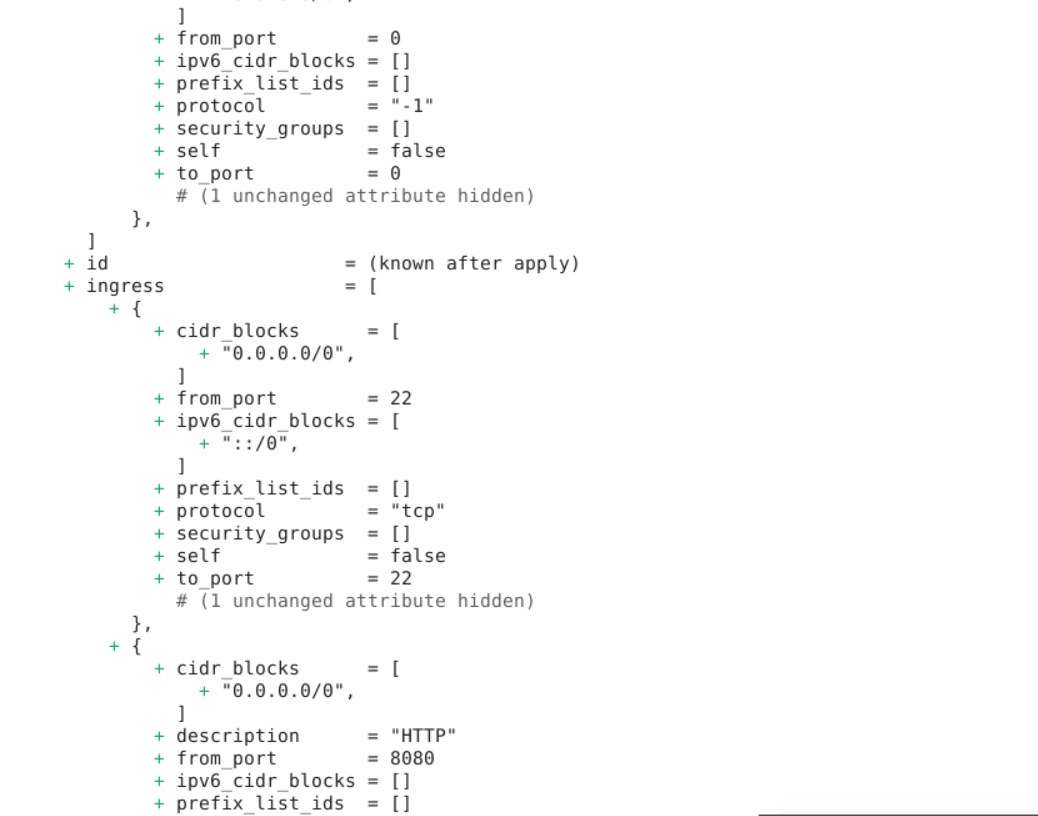
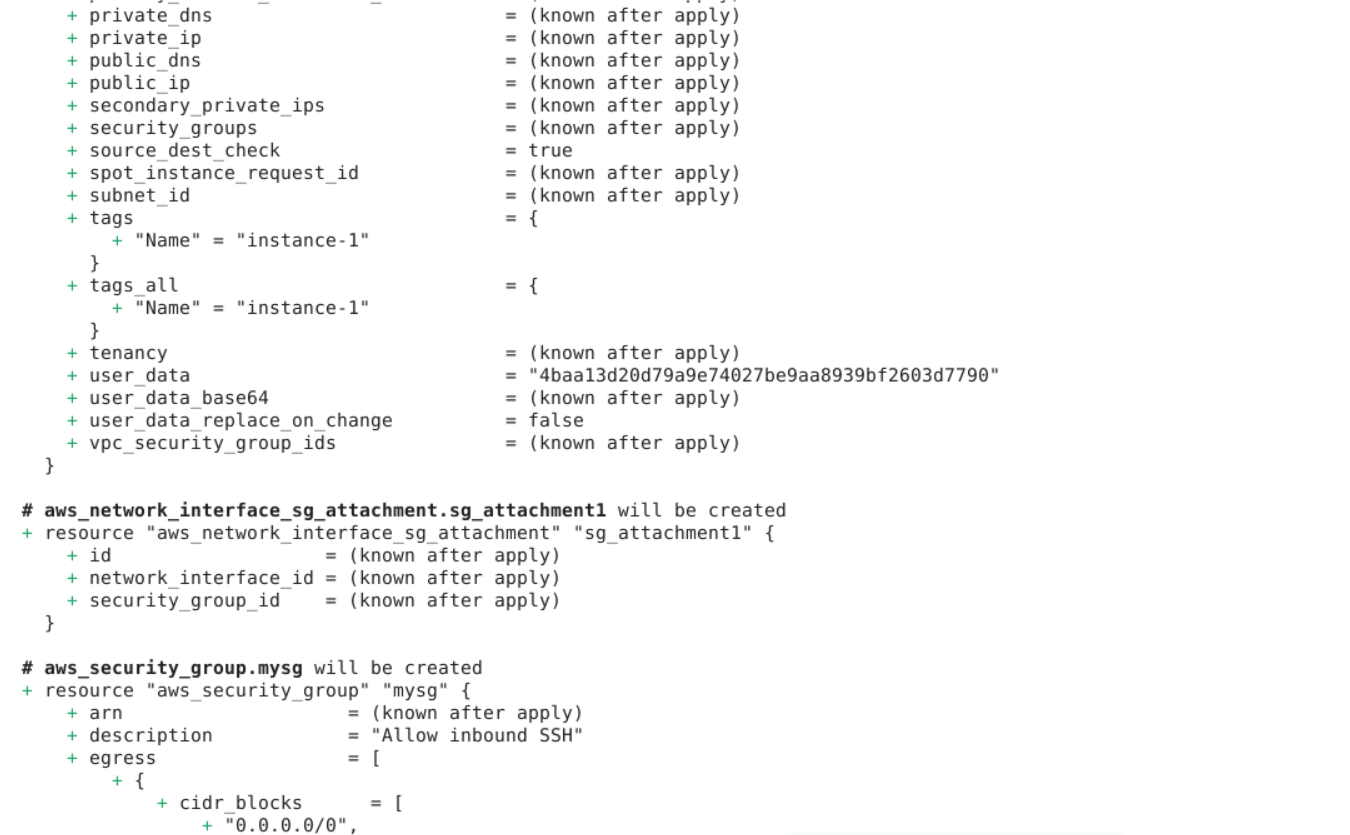
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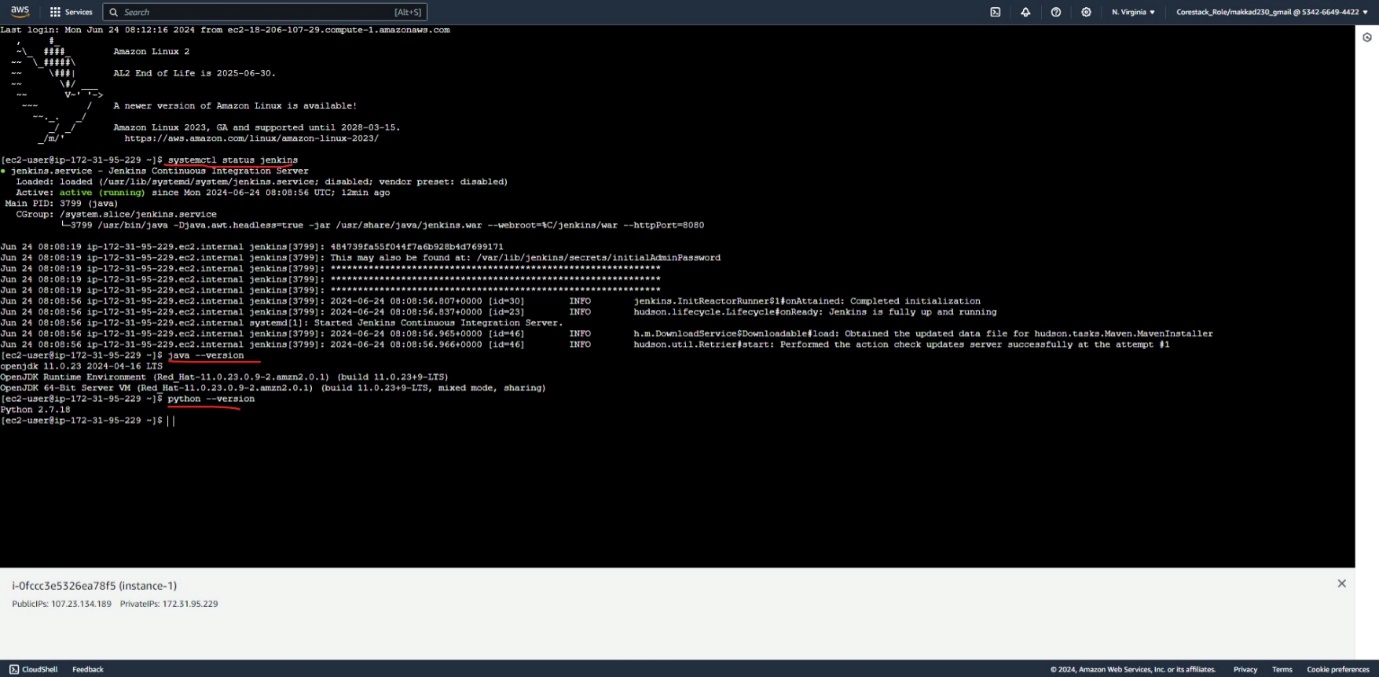
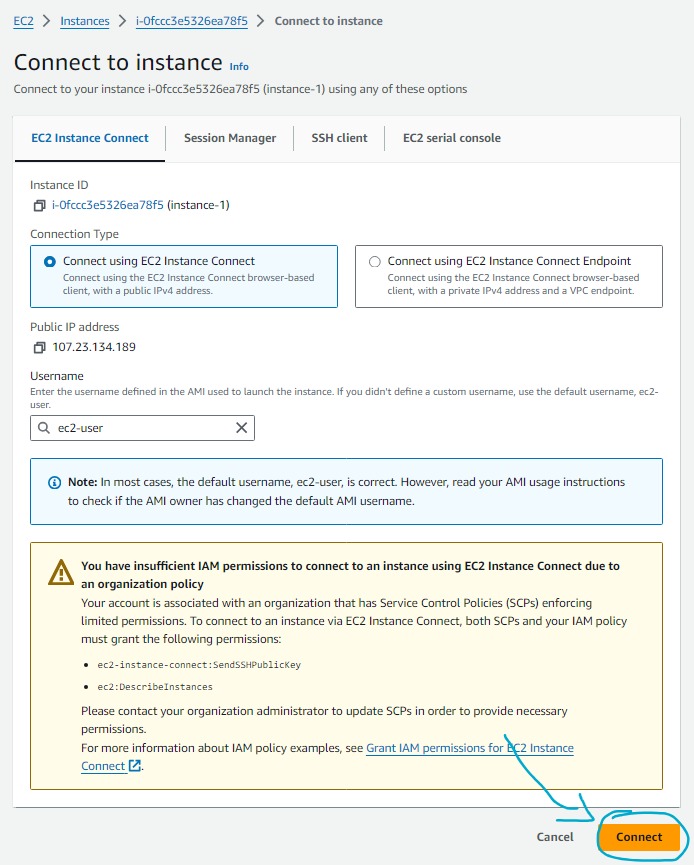
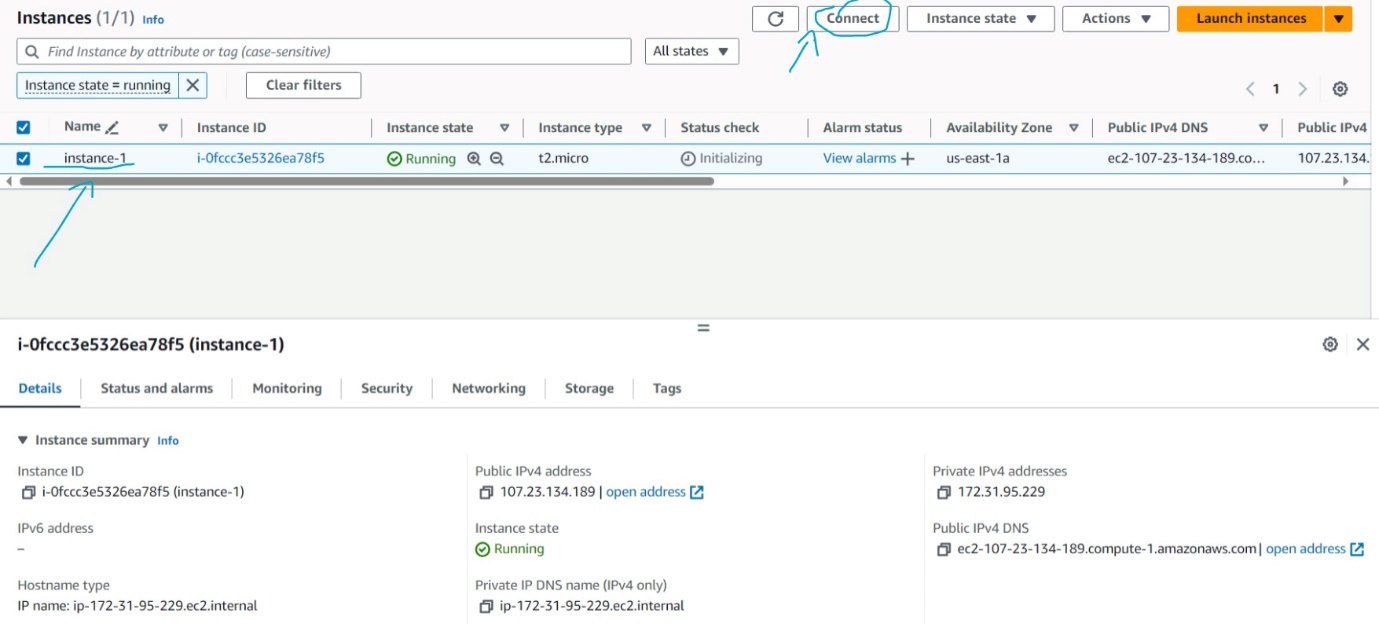
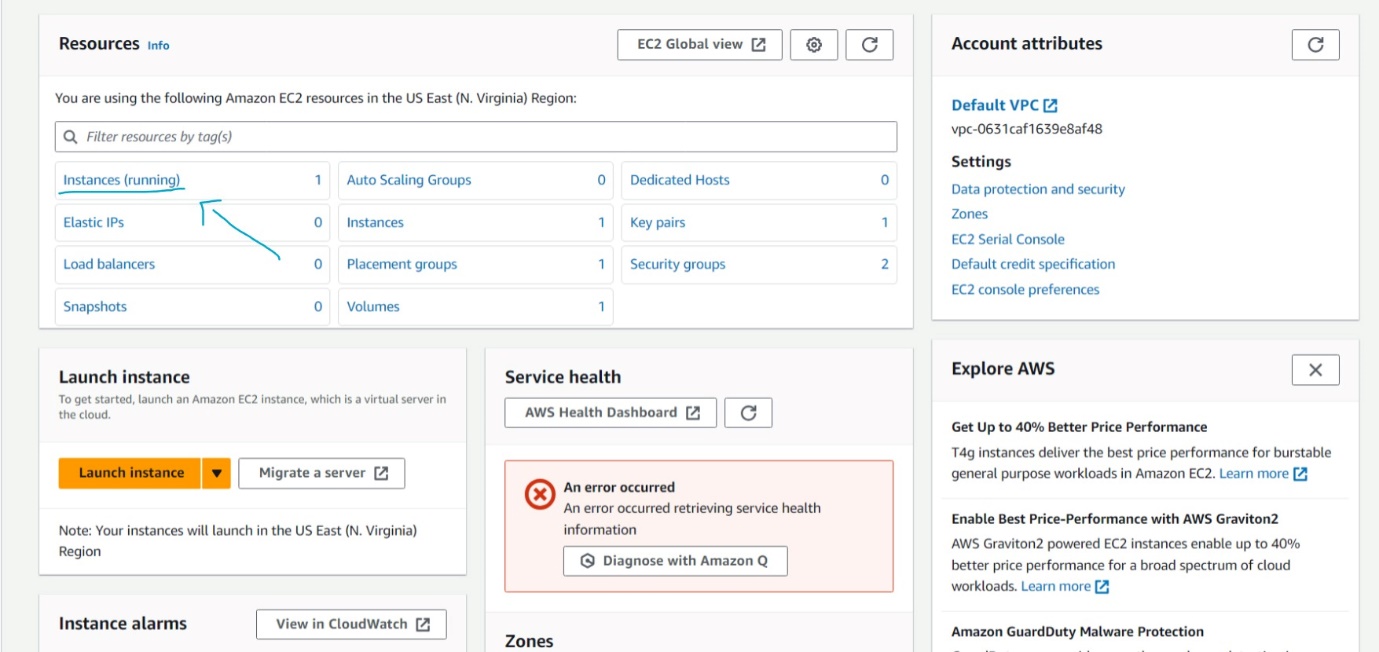
**Step 7: Execute the terraform configuration**

**# terraform apply**

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**Step 8: Validate and check if the tools have been installed on the VM or not.**

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**Completed the project**