Assignment 2 - Creating and deploying Photo Album and Photo Uploader website on a basic AWS infrastructure

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Tutorial Class: Class 1-11 Friday, 2:30 PM – 4:30 PM at BA407

I. Introduction

In this initiative, fundamental AWS frameworks and resources were utilized to launch the Photo Album and Photo Uploader Website. All essential recommendations from the AWS Academy were incorporated during the rollout, leading to a successful deployment.

II. Photo Album & Photo Uploader

The Photo Album website is hosted live on AWS's "DevServer" EC2 instance and accessible via an Elastic IP. Images are uploaded through a user-friendly interface and stored in the "ntanjumbucket" S3 bucket, while associated textual data is saved in the "ntanjumdb" AWS RDS. The PHP-based site allows for seamless photo uploading and retrieval, providing an organized and efficient user experience.

URL: http://18.204.92.58/photoalbum/album.php

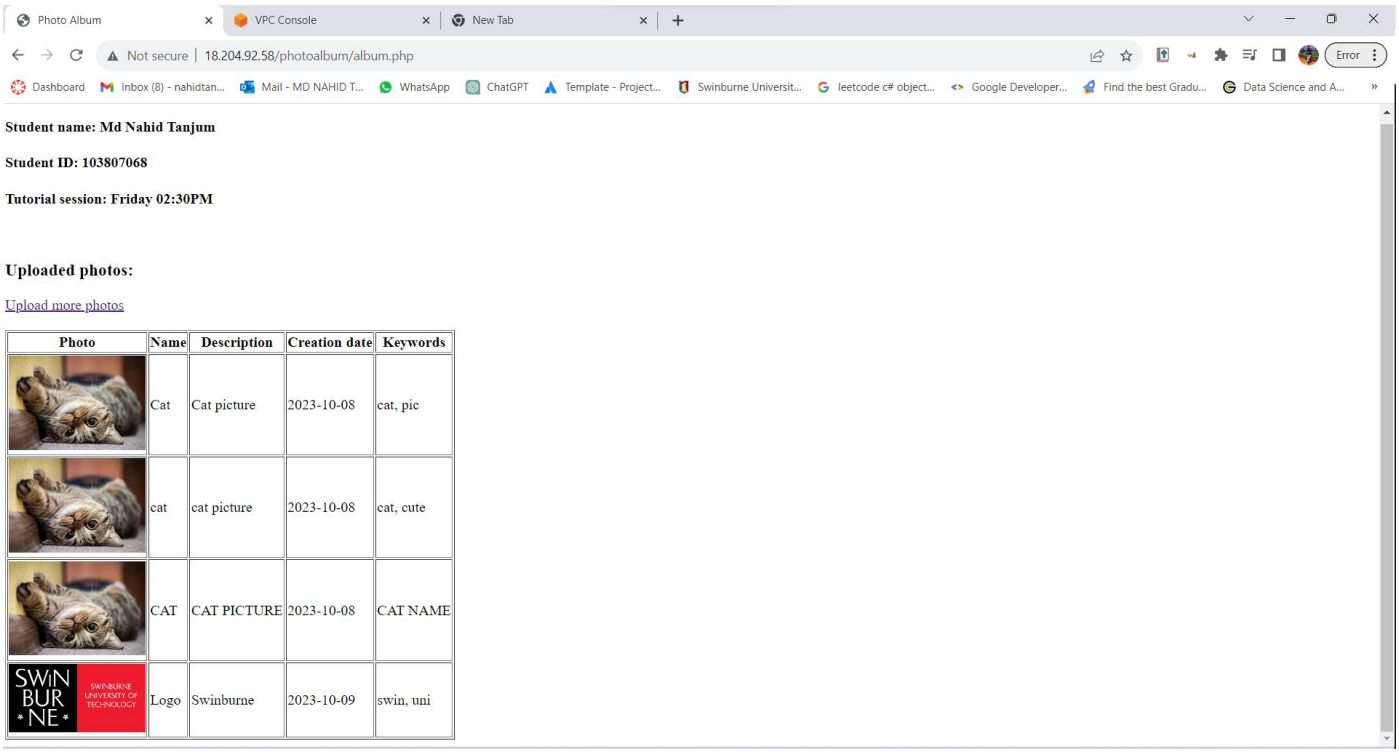

Figure 1 – Photo Album Web Page

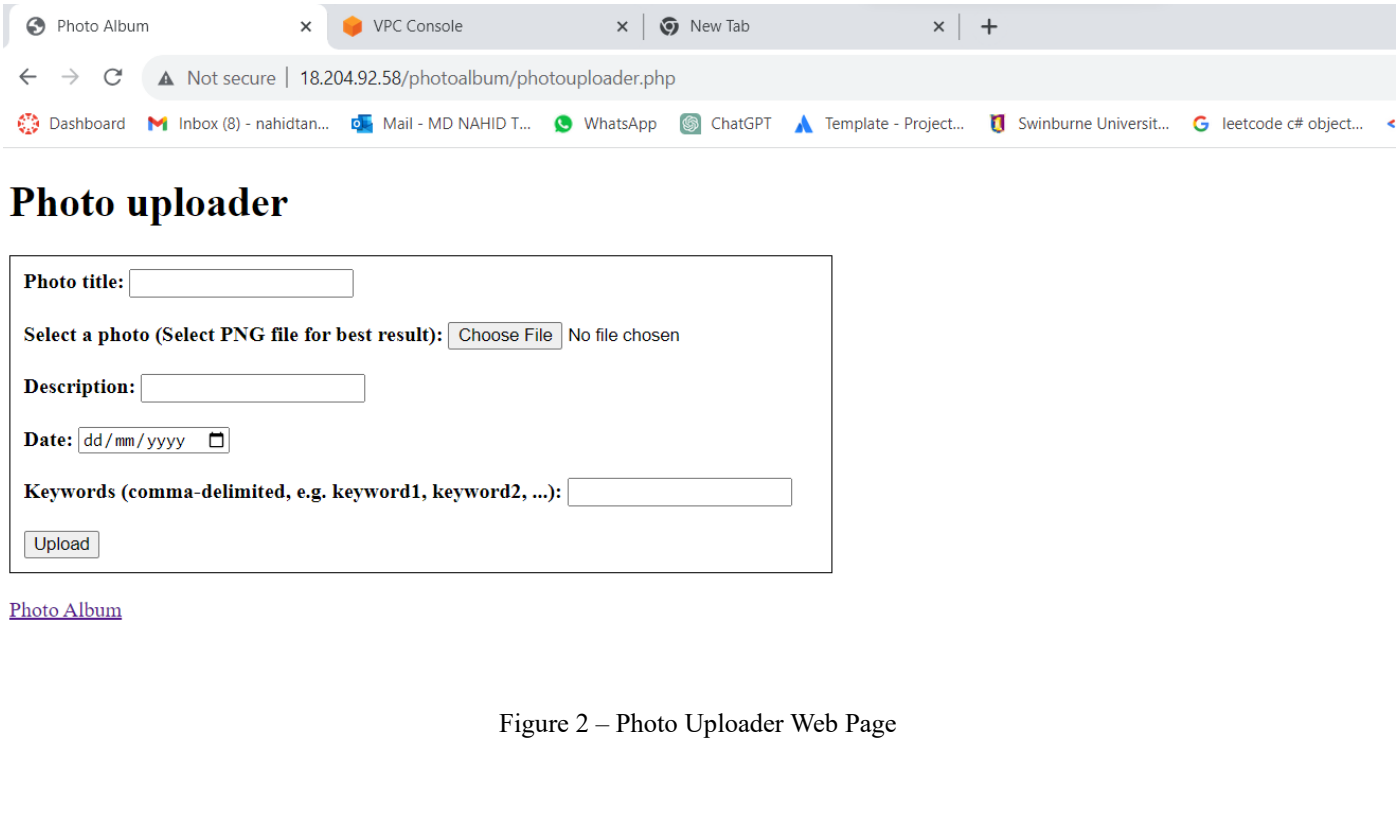

Figure 2 – Photo Uploader Web Page

III. DATA RECORDS IN THE DATABASE

The RDS data has been managed using phpMyAdmin. According to the deployment's requirements, the data has been recorded.

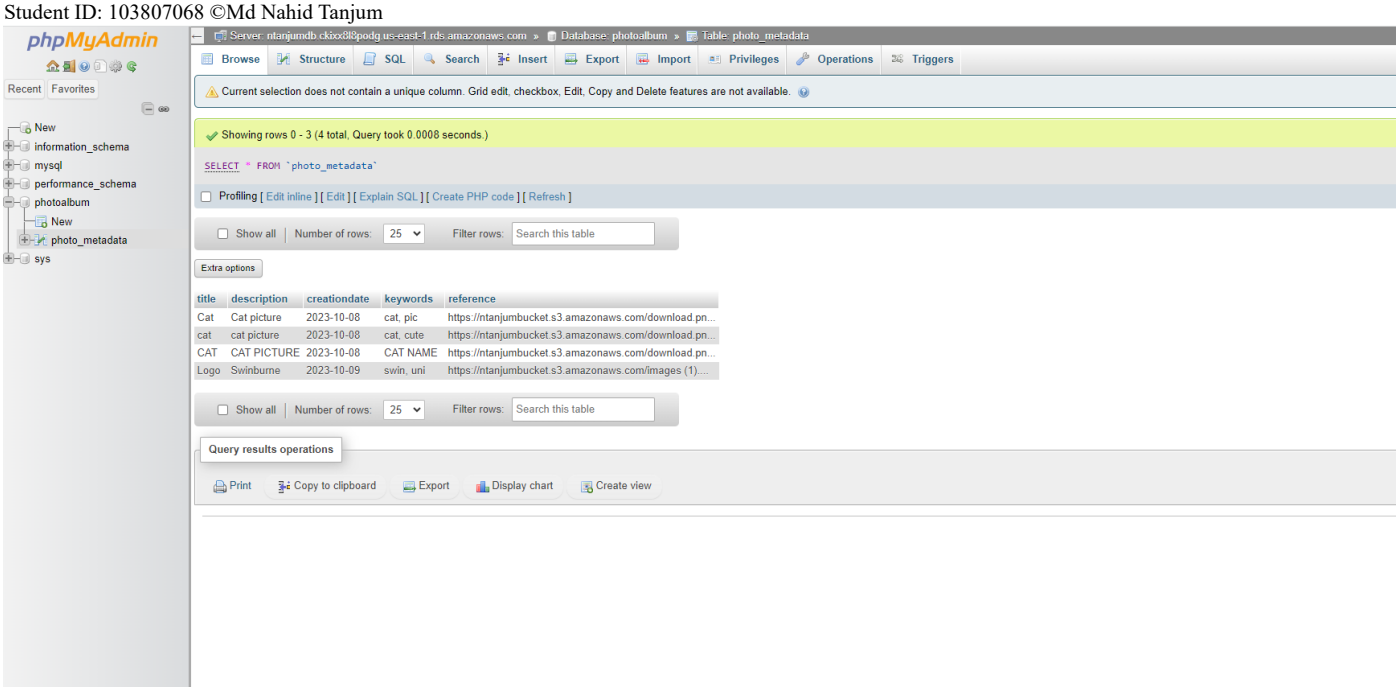

Figure 3 – Database Records

IV. ICMP CONNECTIVITY THROUGH SSH

Through the Linux console, the ICMP connectivity has been tested from the "DevServer." The keypair connected to the "DevServer instance" has been used to access the Linux terminal through the SSH(22) protocol.

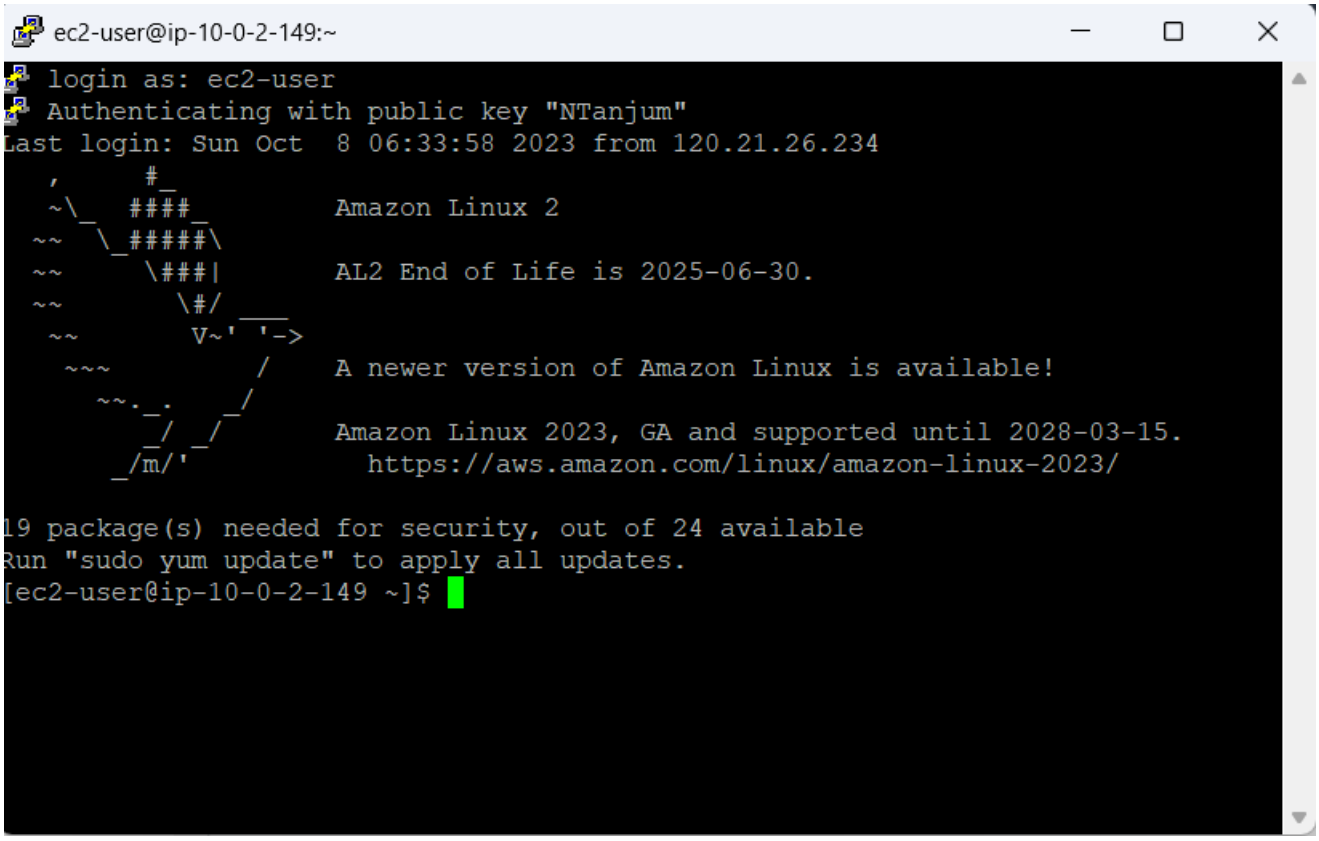

Figure 4 – Linux Terminal of the Test instance

V. DEPLOYMENT STEPS

A. VPC, Subnets, IGW, NACL, NAT

VPC: To accommodate all of the Public and Private Subnets, a VPC with the subnet 10.0.0.0/16 has been constructed in two separate availability zones (AZ-A and AZ-B).

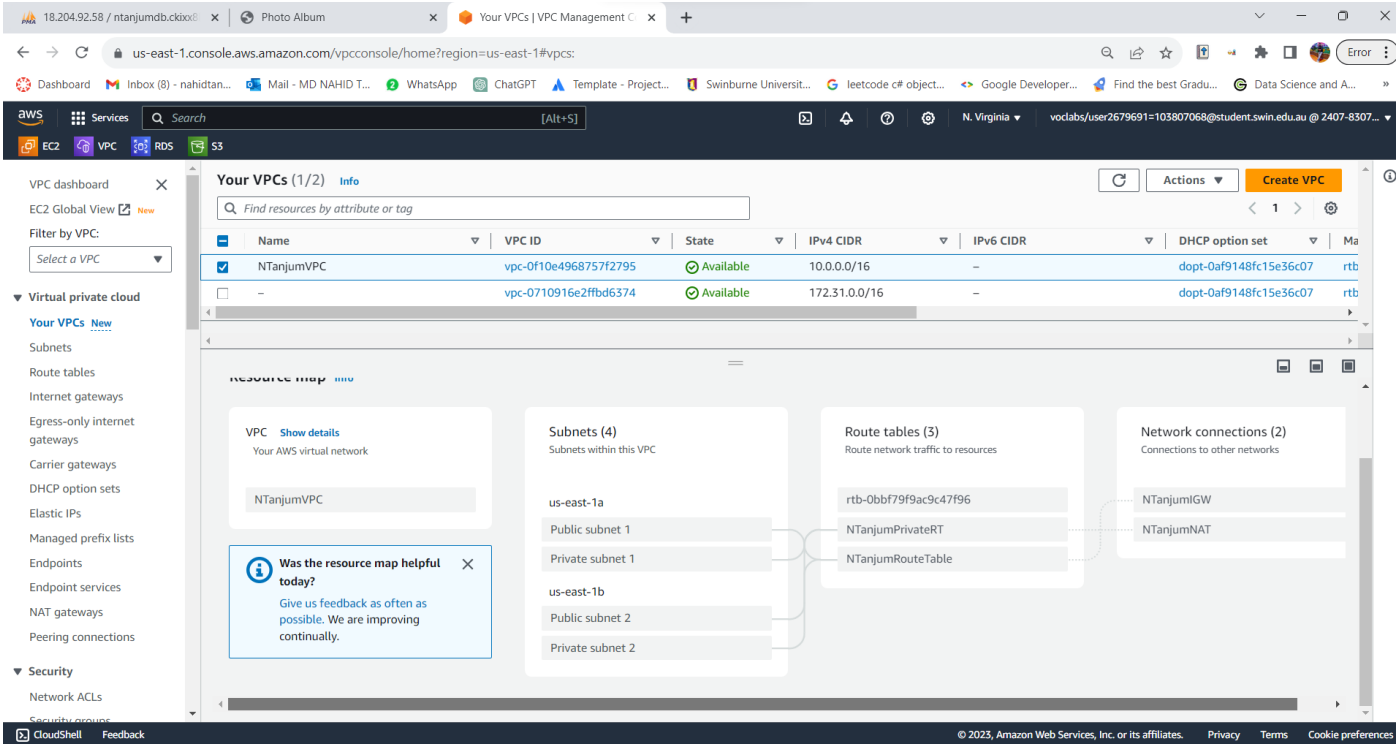

Figure 4 – VPC

Subnets: Four subnets has been created within the VPC for separation of the network.

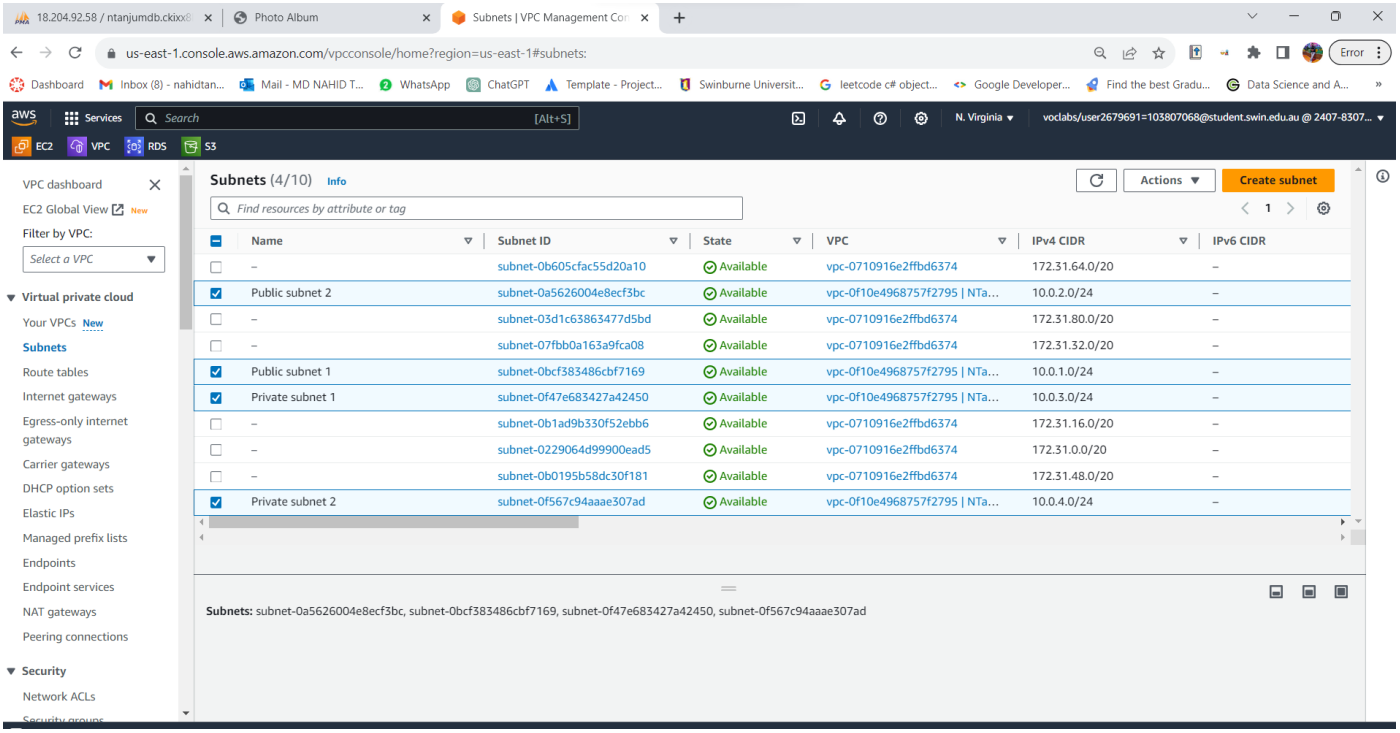

Figure 5 - Subnets

Internet Gateway: In order to implement routeing within the subnets and the internet, an Internet Gateway has been constructed.

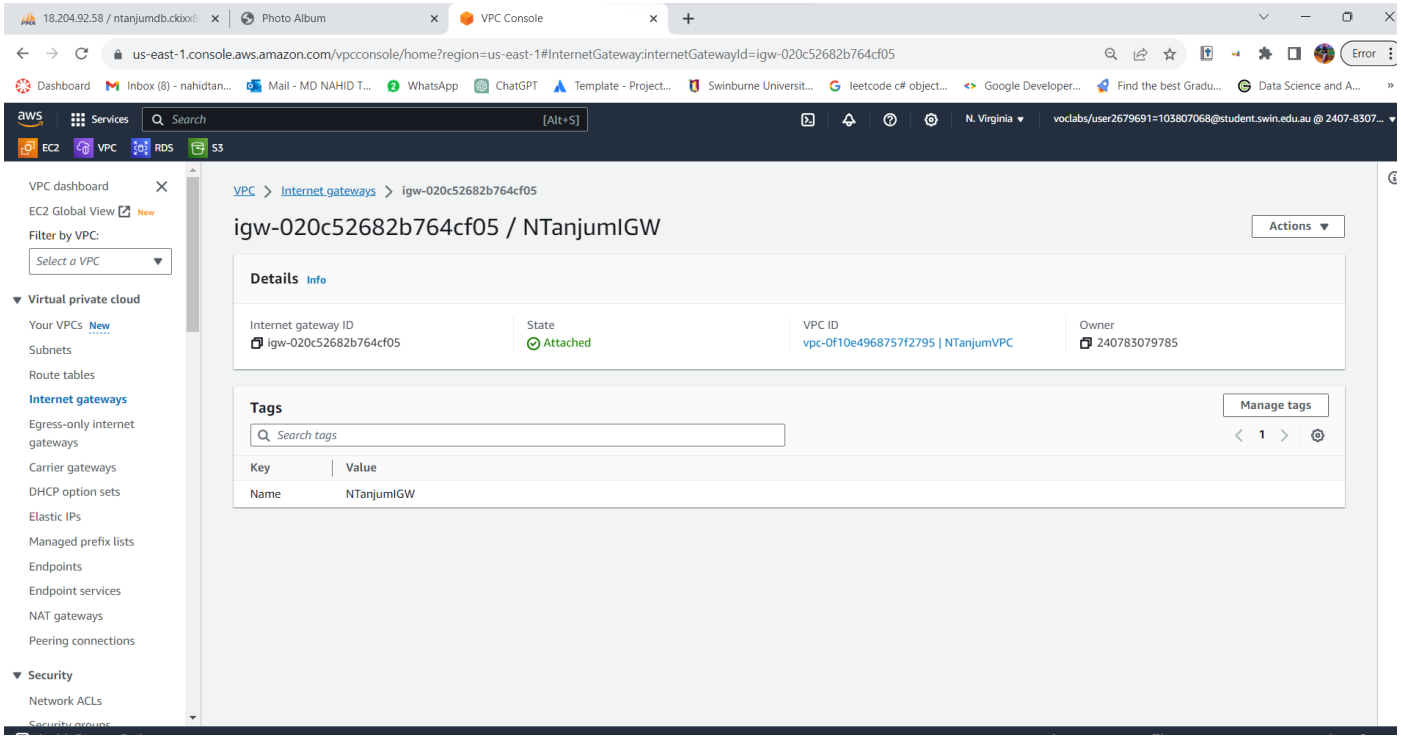

Figure 6 – Internet Gateway

NAT Gateway:

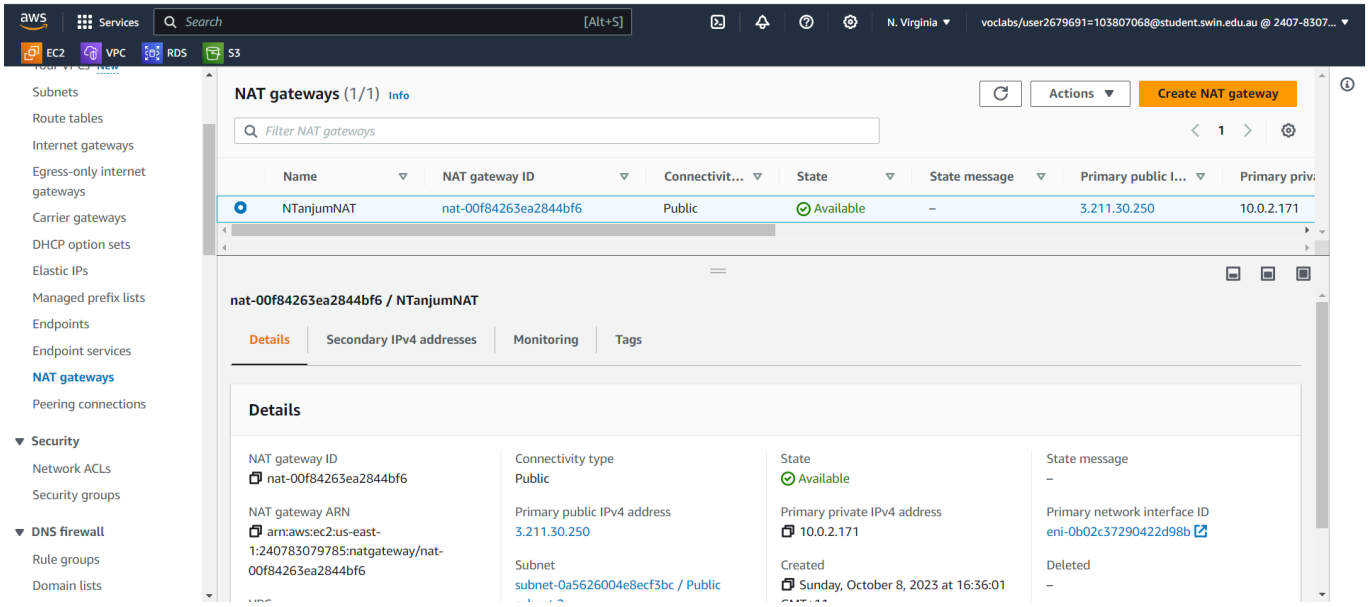

Figure 7 – NAT Gateway

A. Network ACL: A NACL has been set up with the necessary inbound and outbound rules to limit access to and from the Private Subnet.

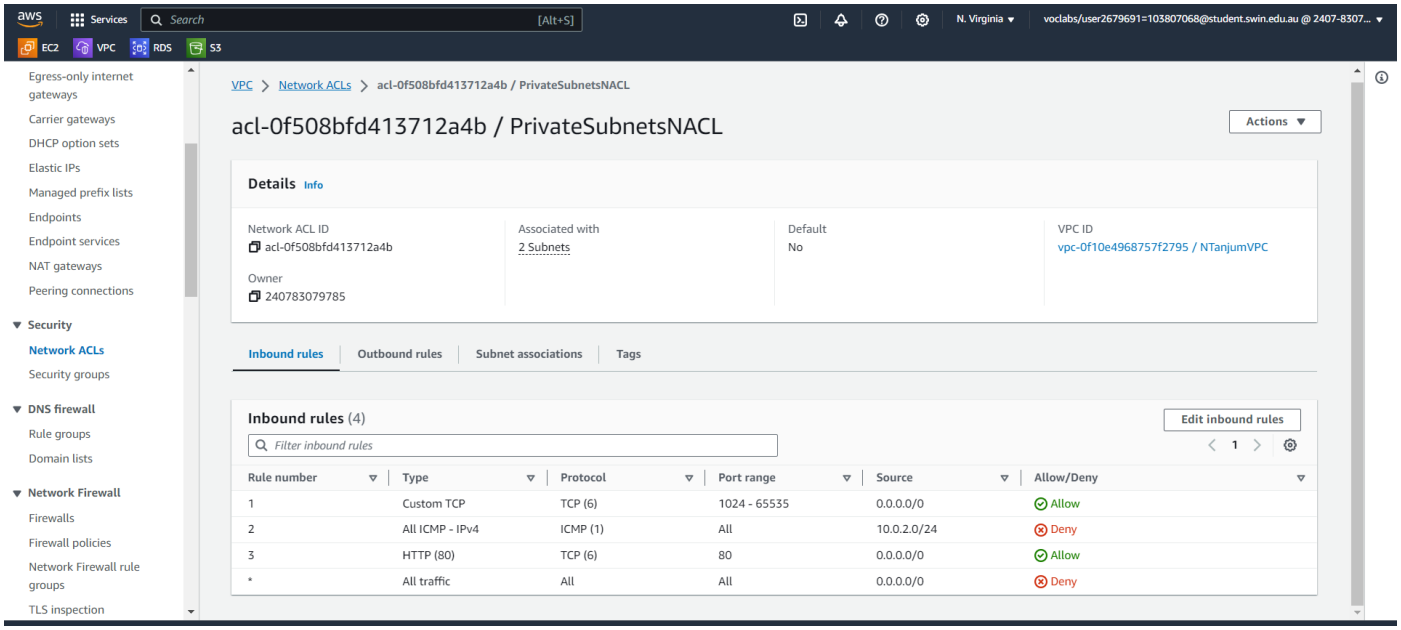

Figure 8 – Network ACL

B. *Security Groups*

With the stated access restrictions and associated to the appropriate AWS services, Security Groups have been built to function as a firewall.

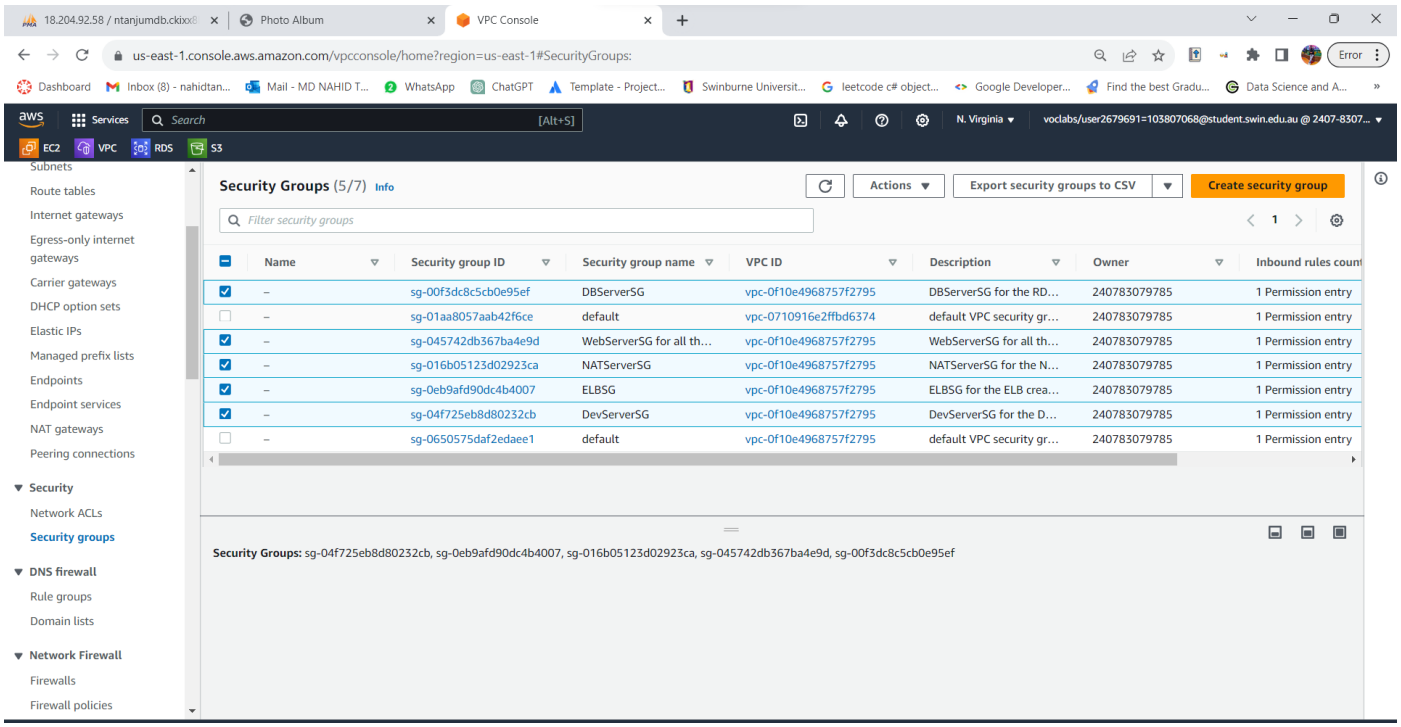

Figure 9 – Security Groups

C. EC2 Instances

The web application "Photo Album" is being hosted by the "DevServer" webserver instance.

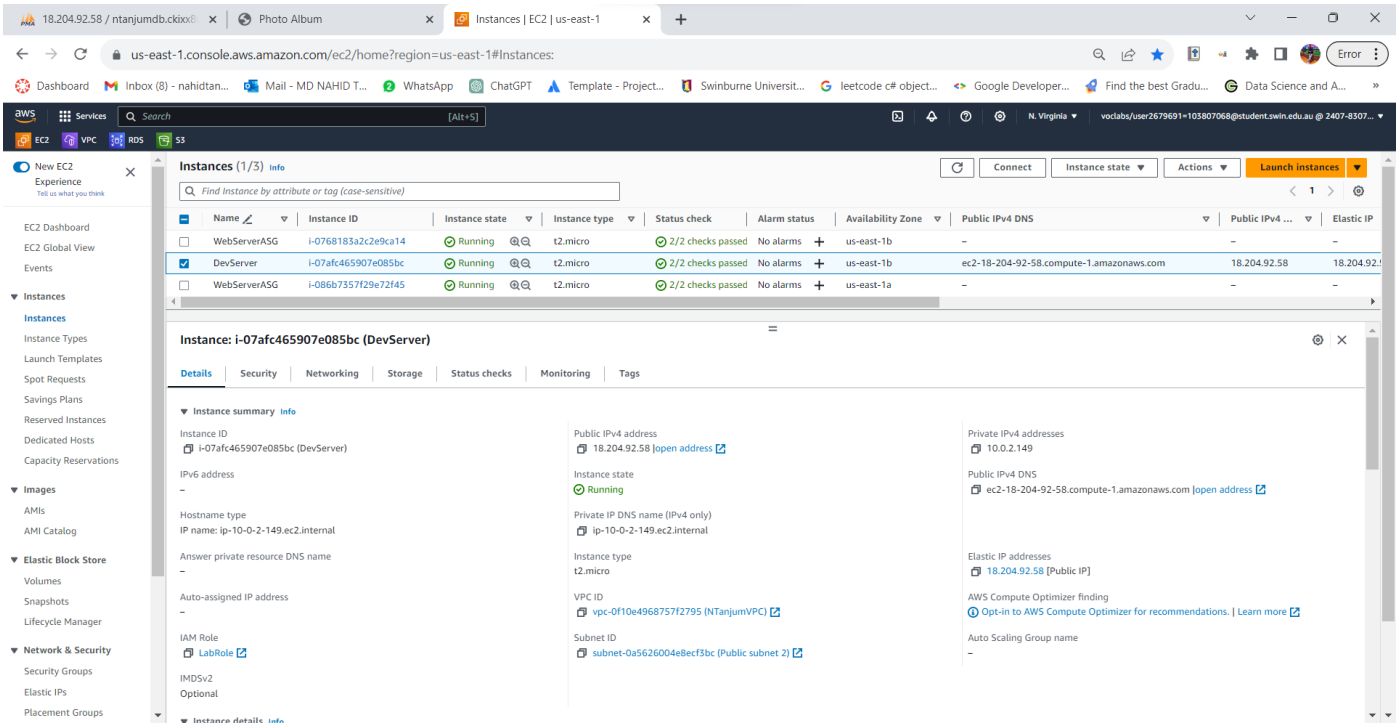

Figure 10 – Devserver Instance

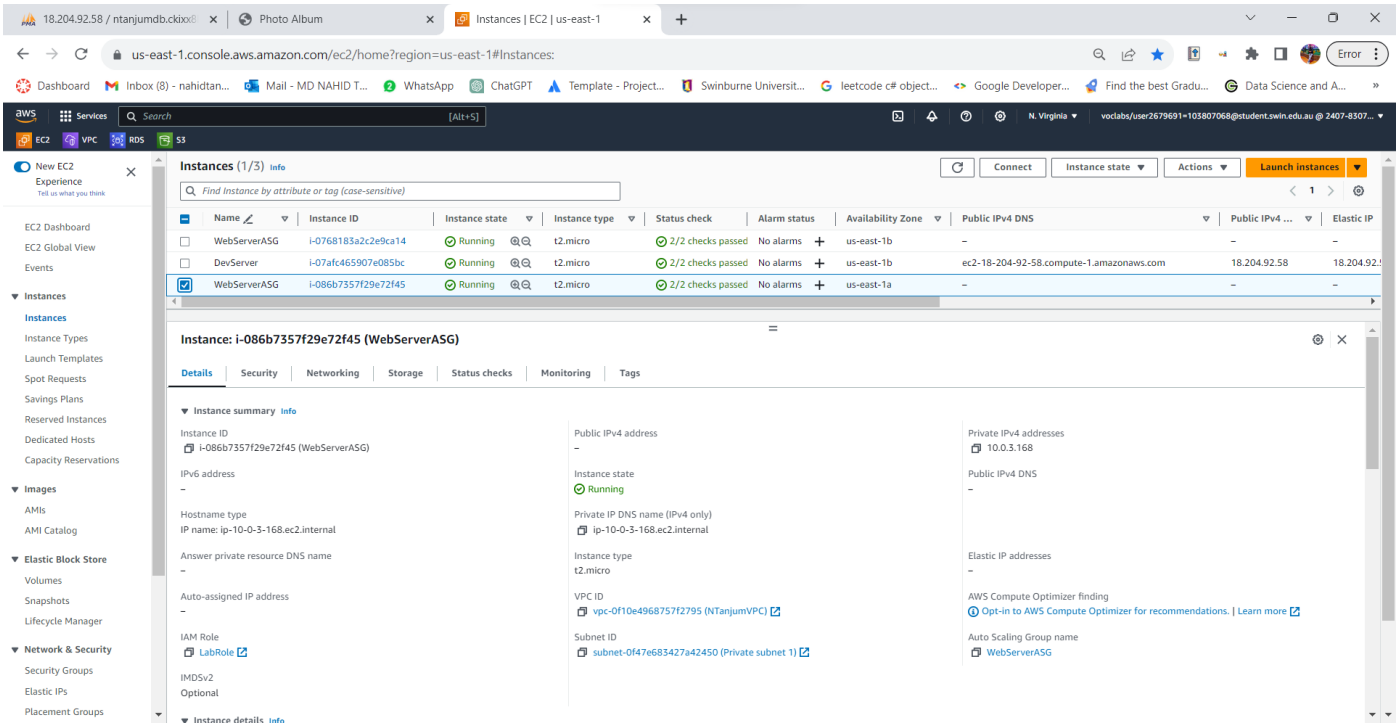

Figure 11 – WebServerASG Instance

D. RDS

To store data with the appropriate subnet groups and security groups applied, MySQL 8.3.34 was used to construct the single zone database instance "ntanjumdb".

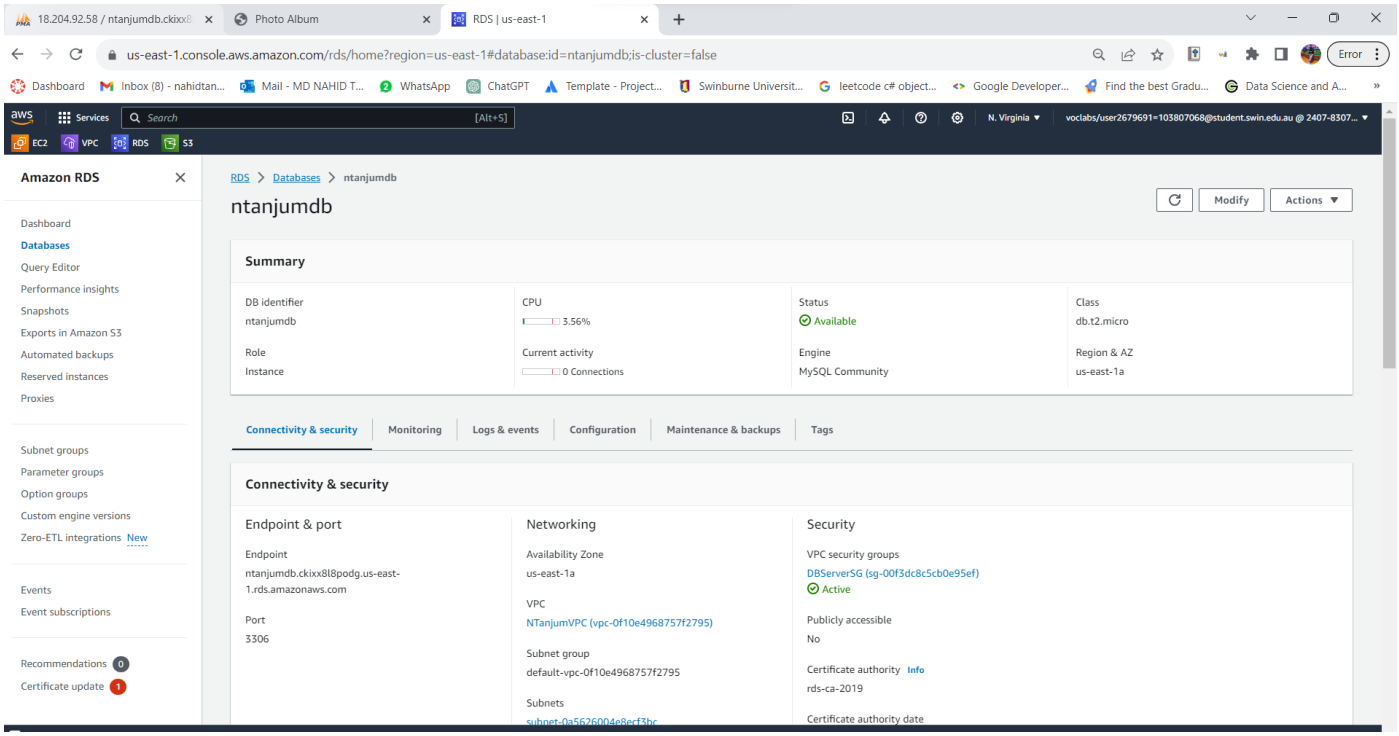

Figure 11 - Database

E. S3

A S3 bucket storage has been set up to store the picture file with the necessary availability and no limits on public access.

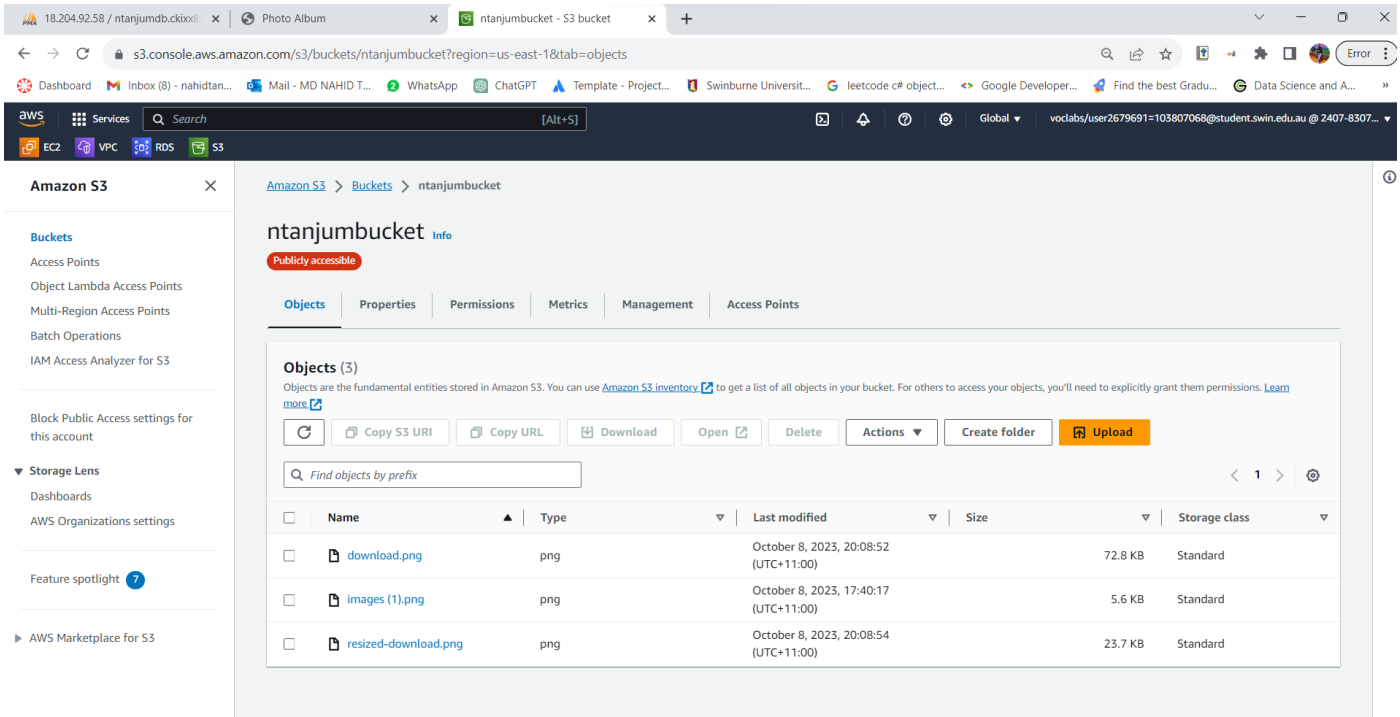

Figure 12 – S3 Bucket Storage

F. AMI

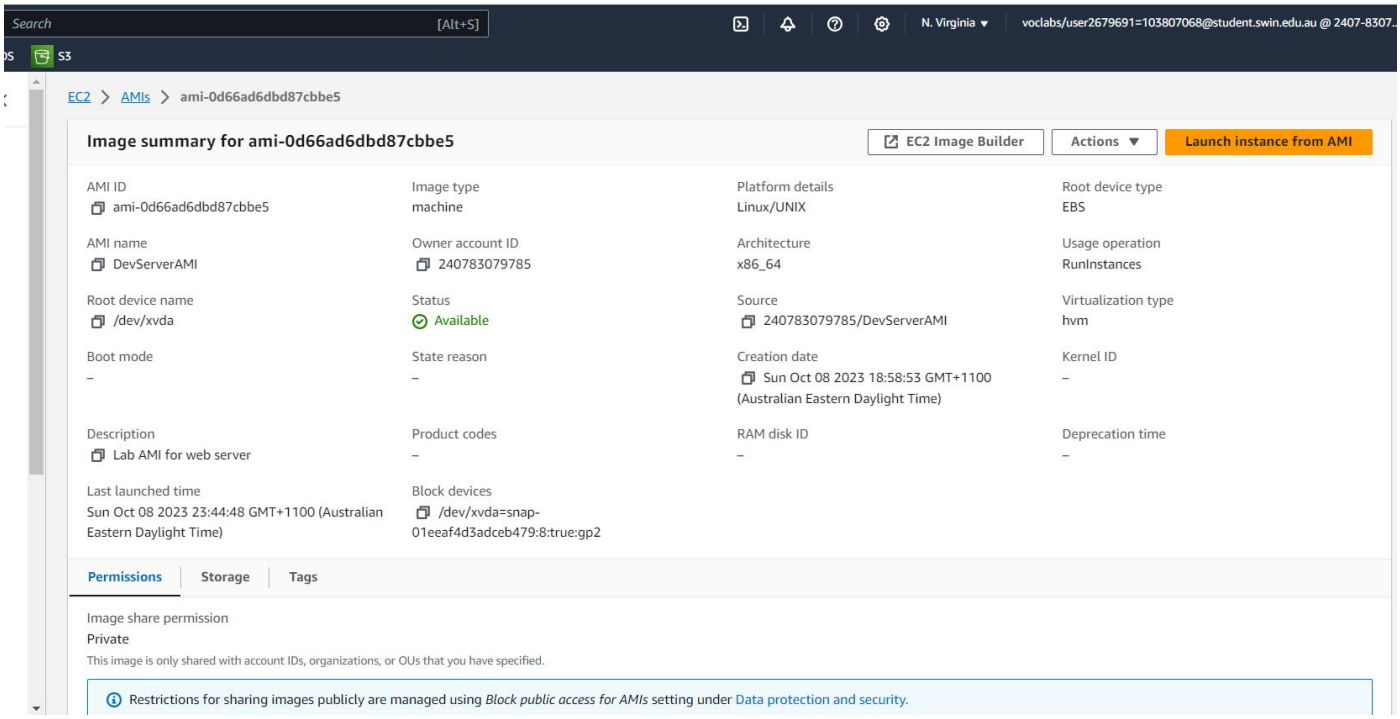

Figure 13 – AMI

G. Launch Template

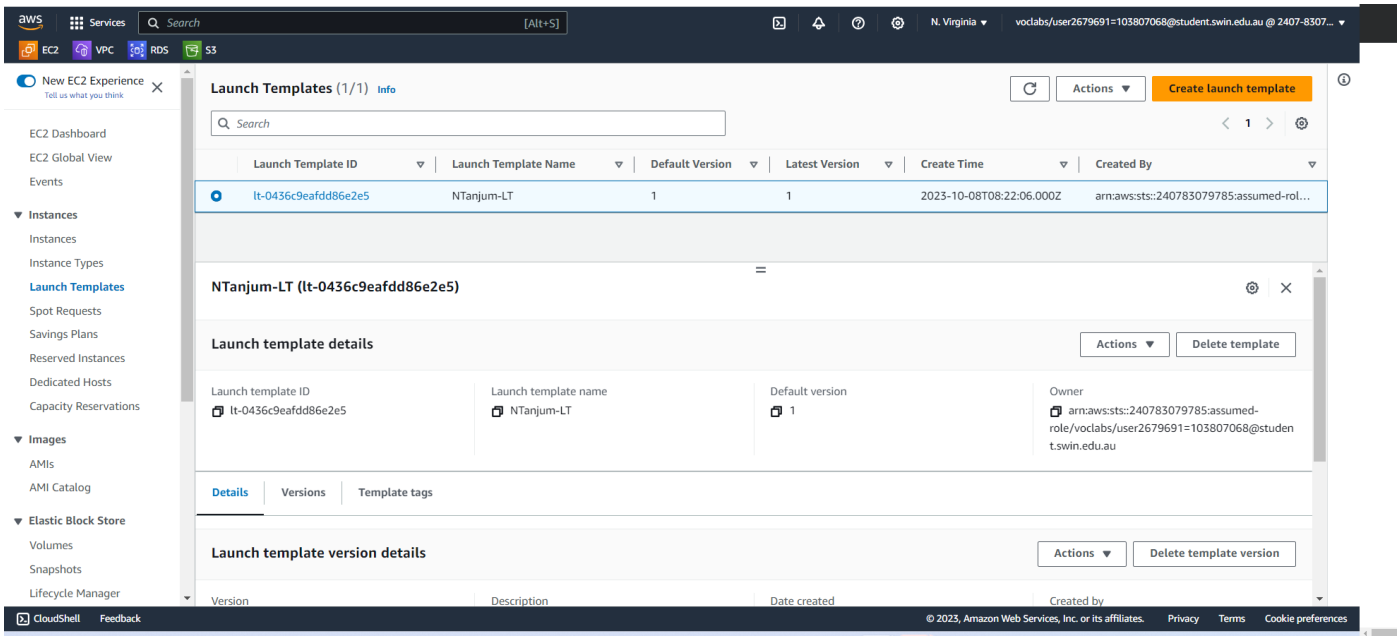

Figure 14 – Launch Template

H. Load Balancers

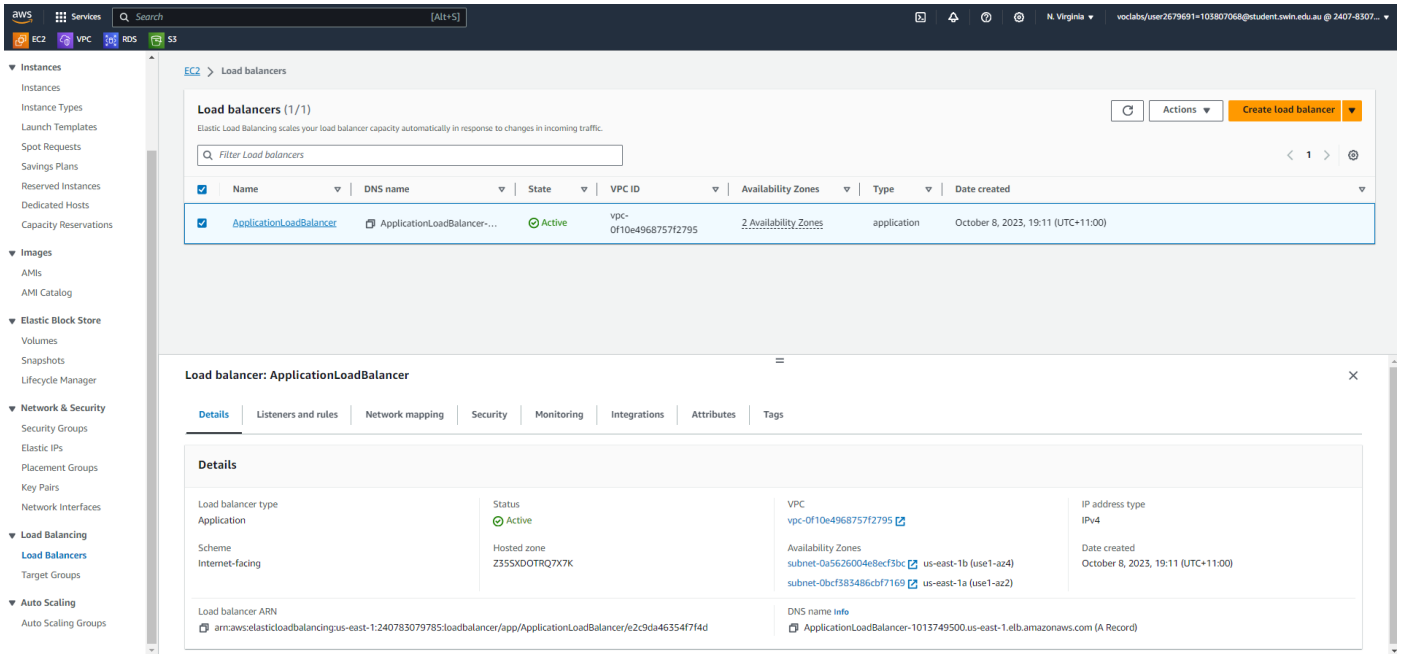

Figure 15 – Load Balancer

I. Target Groups

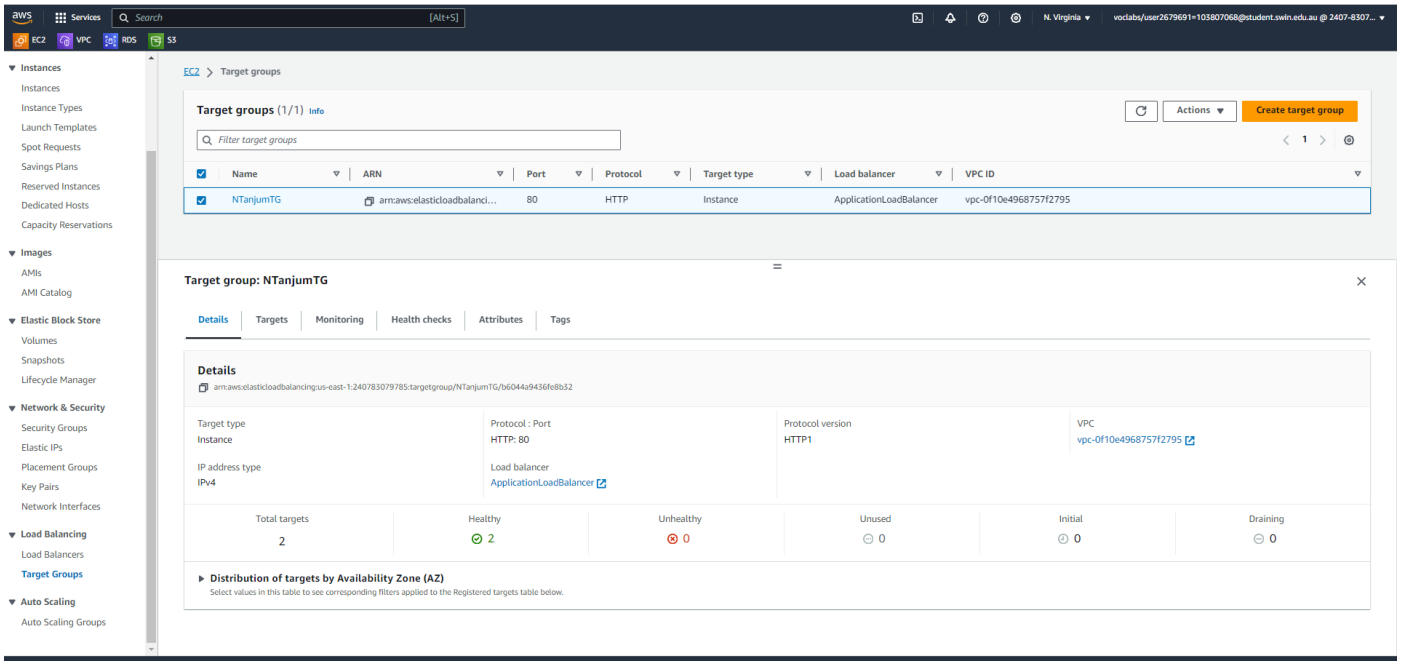

Figure 16 – Target Groups

J. *Auto Scaling groups*

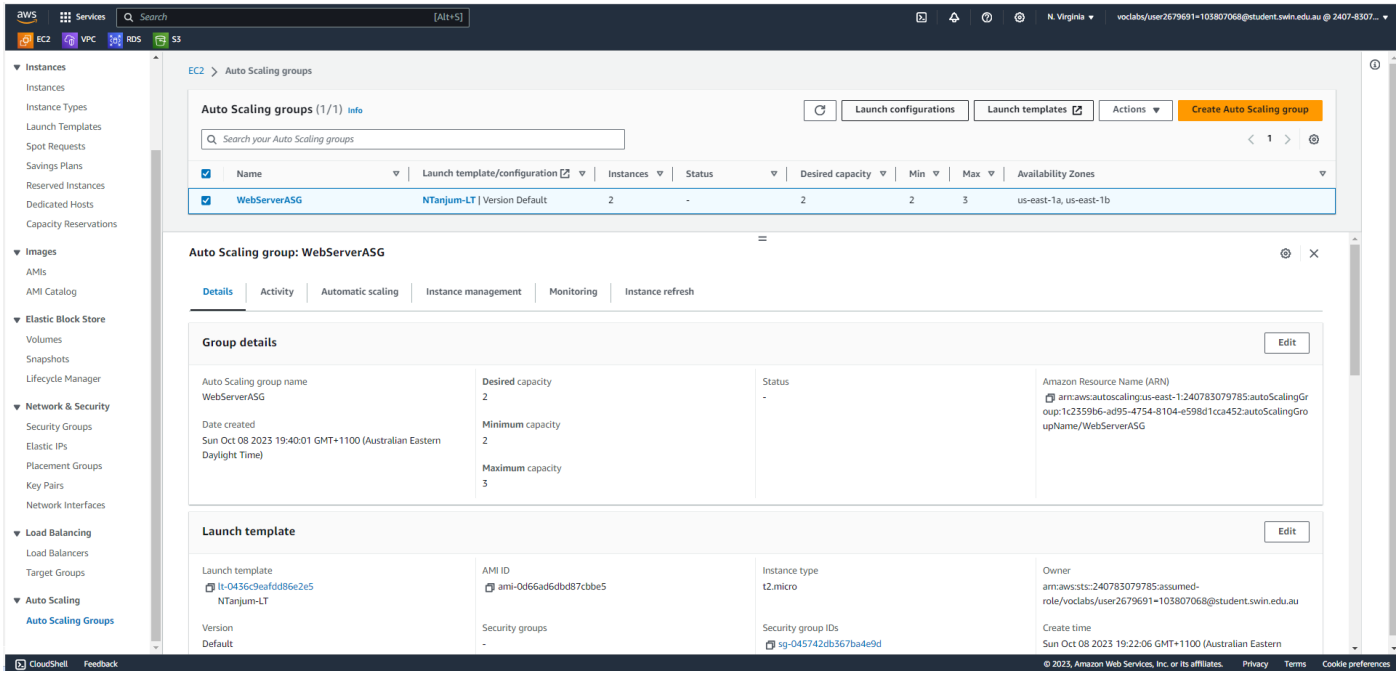

Figure 17 – Auto Scaling groups