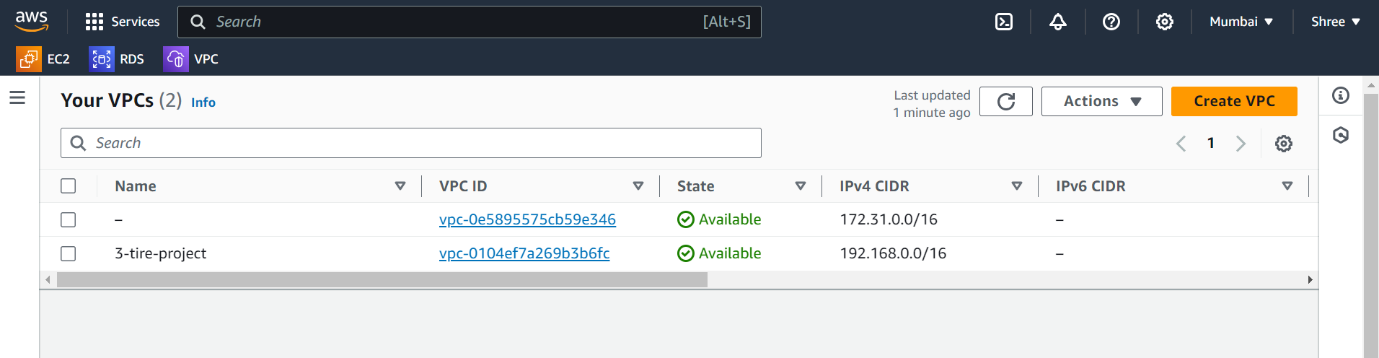
This guide details the steps required to set up a 3-tier application architecture on AWS, including VPC, subnets, EC2 instances, RDS, and necessary configurations. Here the visual representation of 3-Tier application working

Step 1:

Setup Networking Components 1.1 Create VPC Here we create VPC named as 3-tire-project with selecting option of VPC only and then provided the CIDR range 192.168.0.0/16



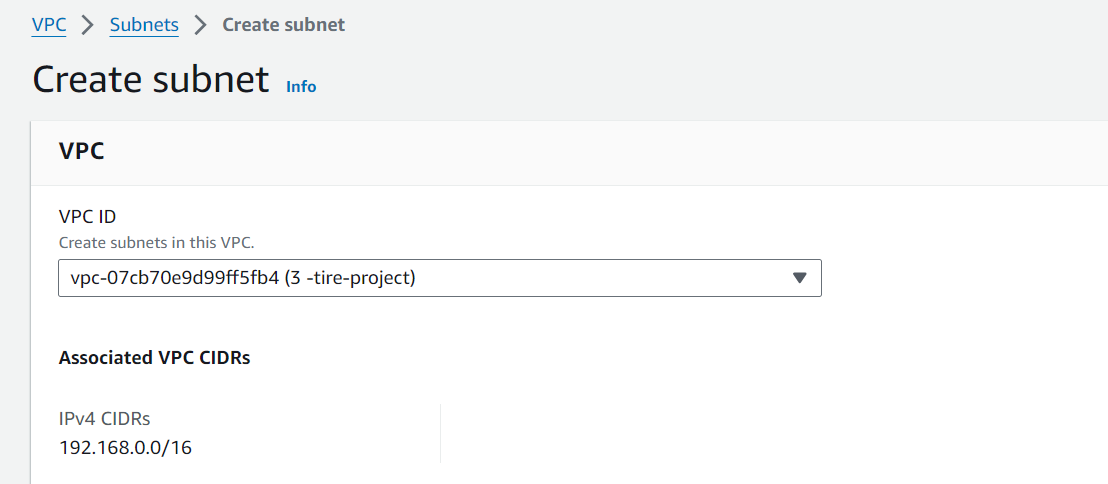
create on vpc and here your 3-tire-project is created.

Step 2:

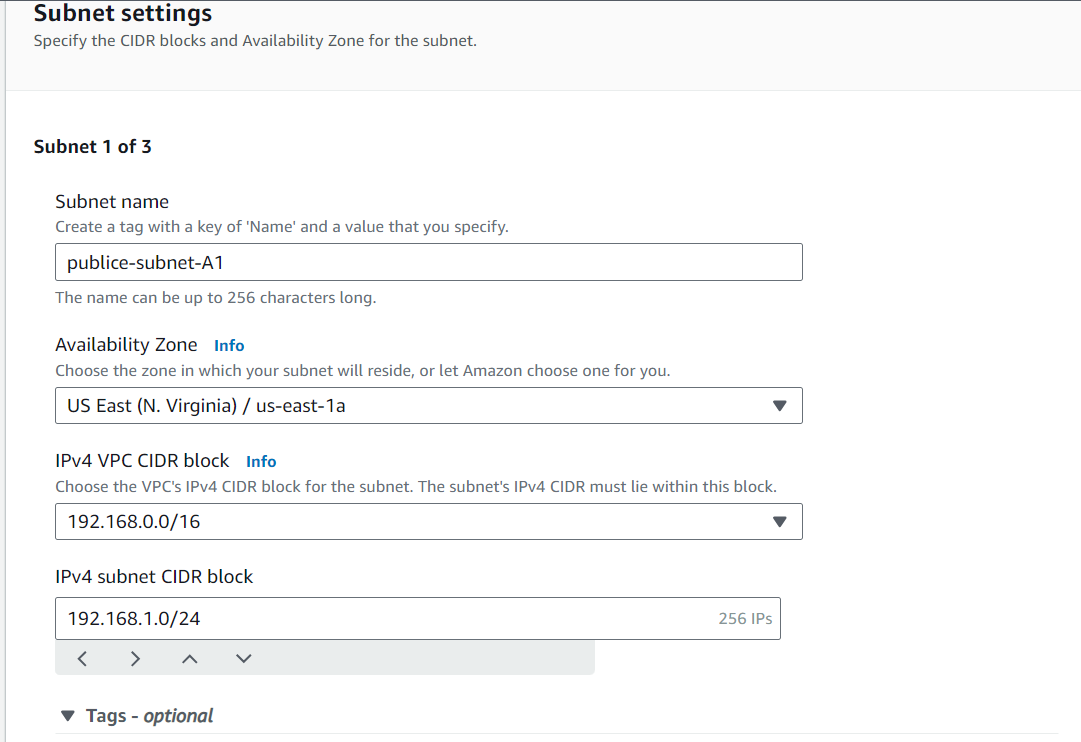
Create 3 Subnets :- Public-Subnet-1a Ipv4 CIDR Block - 192.168.1.0/24

Private-Subnet-1b, Ipv4 CIDR Block - 192.168.2.0/24

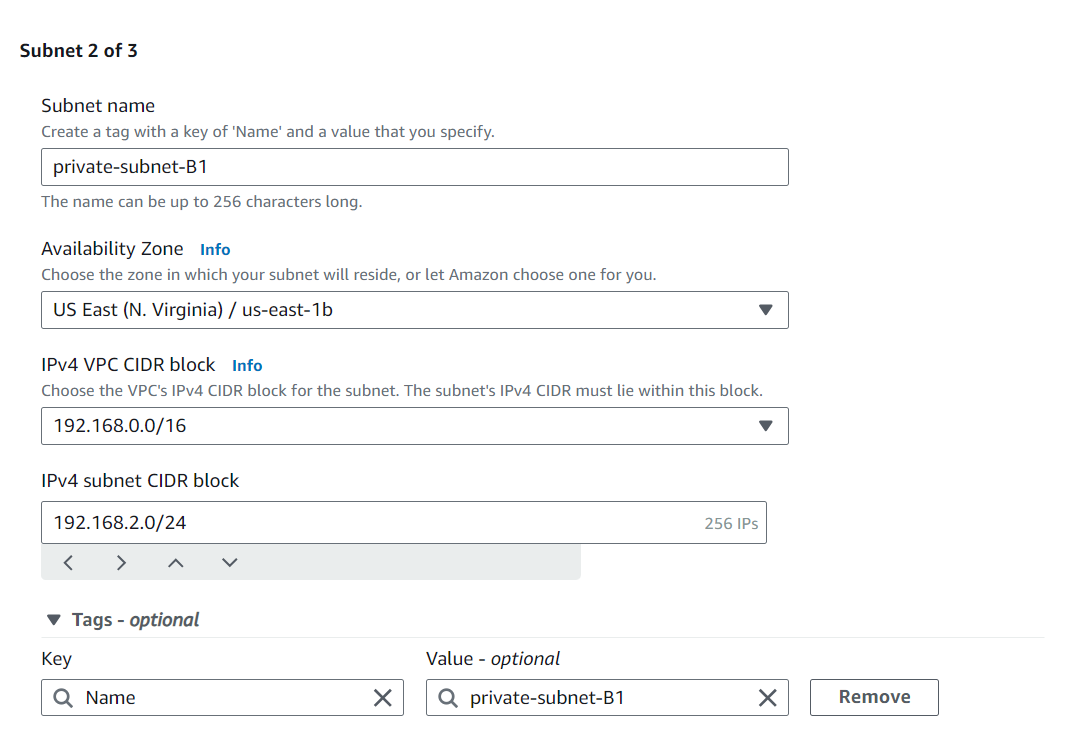
Private-Subnet-1c, Ipv4 CIDR Block - 192.168.3.0/24



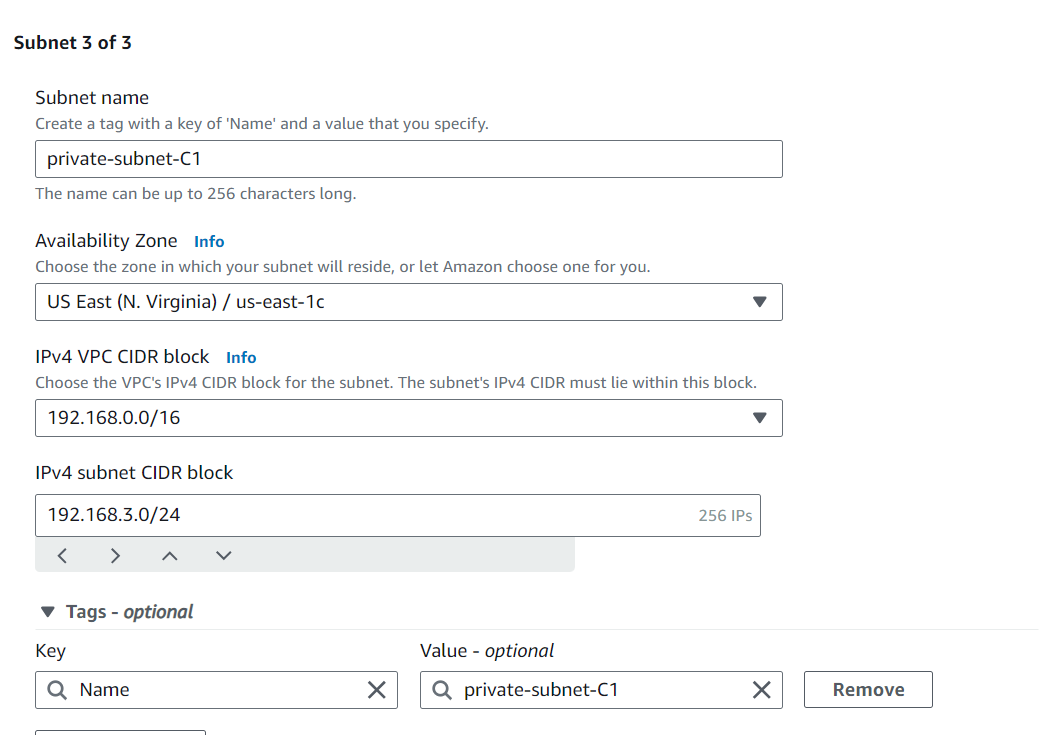
Public-Subnet- 1a,us east-1a Ipv4 CIDR Block - 192.168.1.0/24



Private-Subnet-1b, us-eas-1b, Ipv4 CIDR Block - 192.168.2.0/24

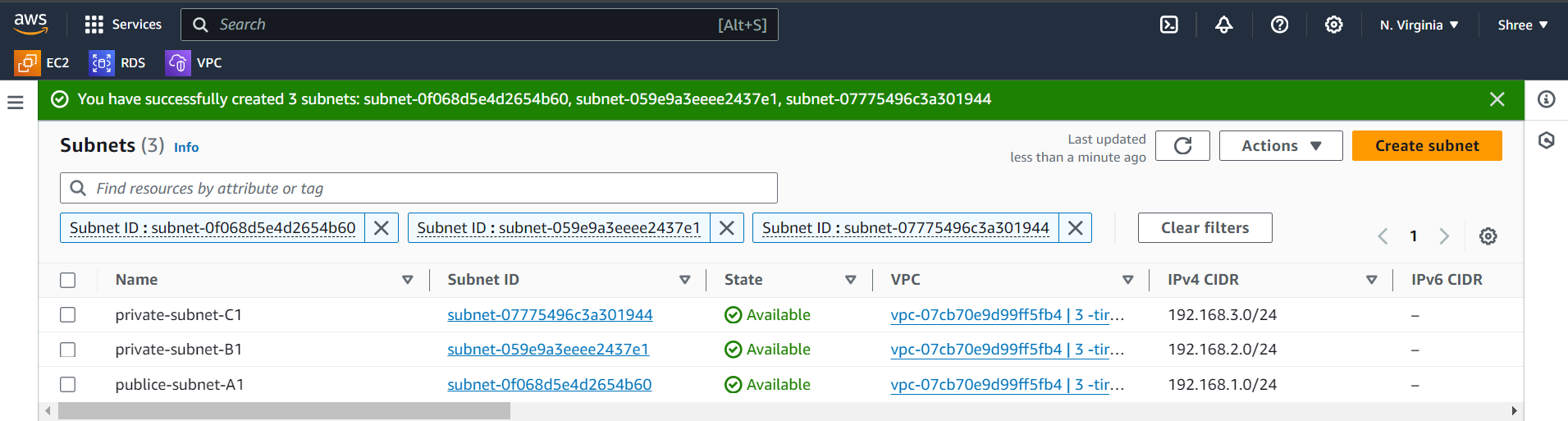


Private-Subnet-1c, Ipv4 CIDR Block - 192.168.3.0/24



Step 3

You have successfully created 3-subnet

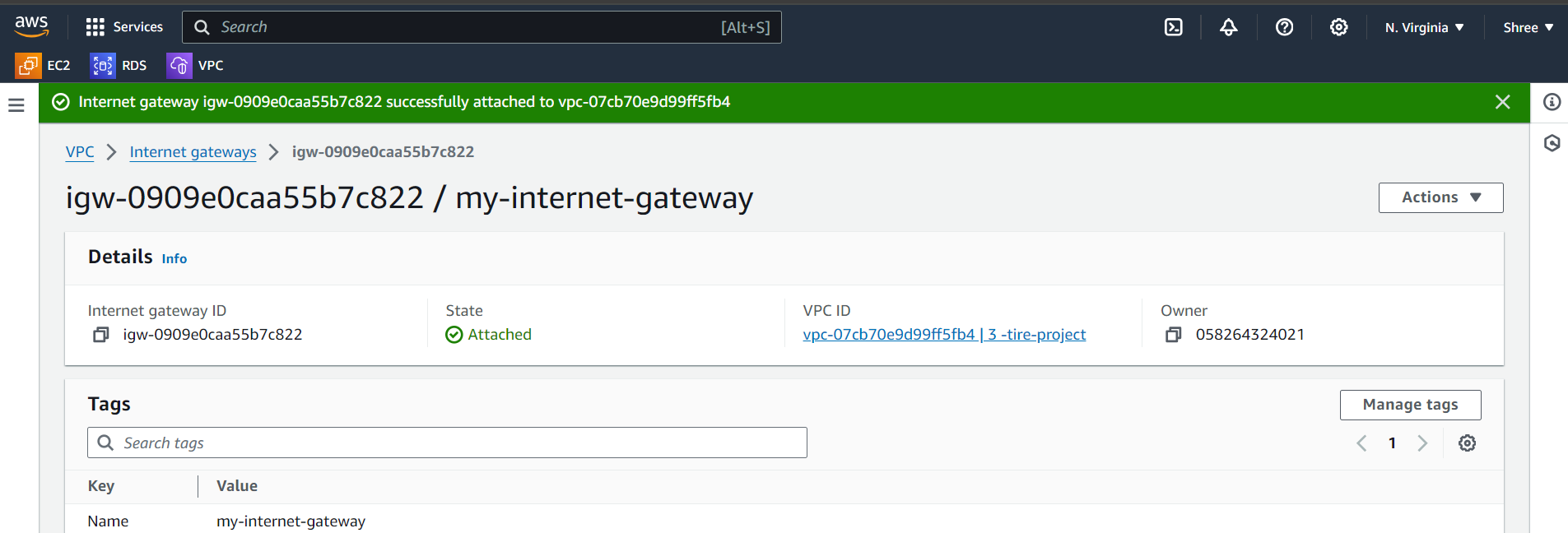


Step 4

Internet Gateways → Create Internet Gateway → Name Tag →my internet gateway

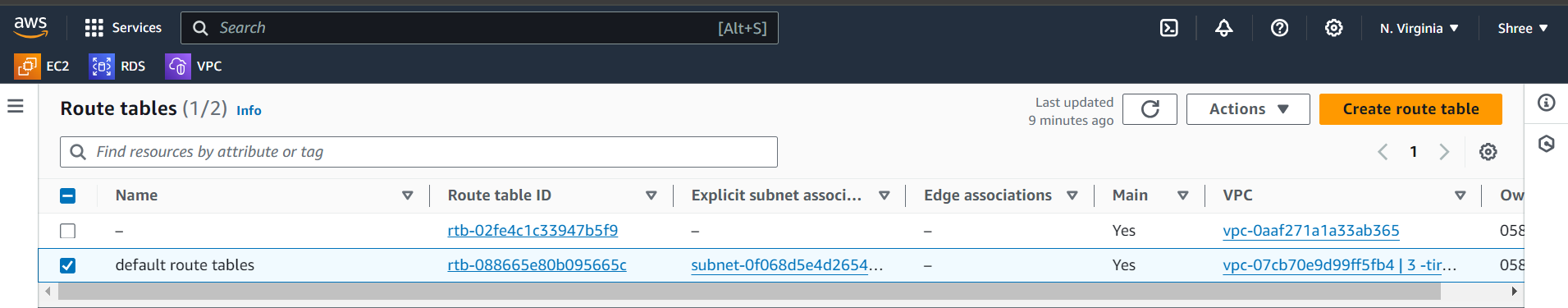
Attach Internet Gateway (my internet gateway) To VPC (3-tire-project)

Select VPC → Actions → Attach To VPC → Select VPC (3-tire-porject)



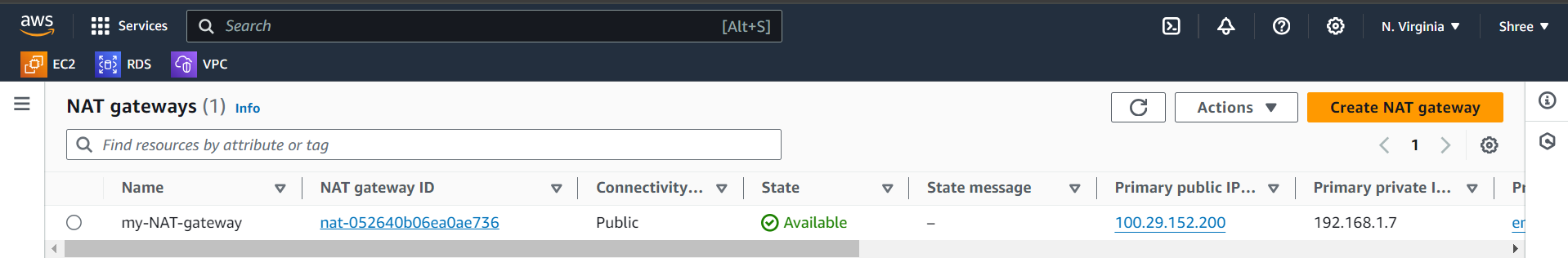
Step 5

Create the default round table and attached of IGW and public subnet.



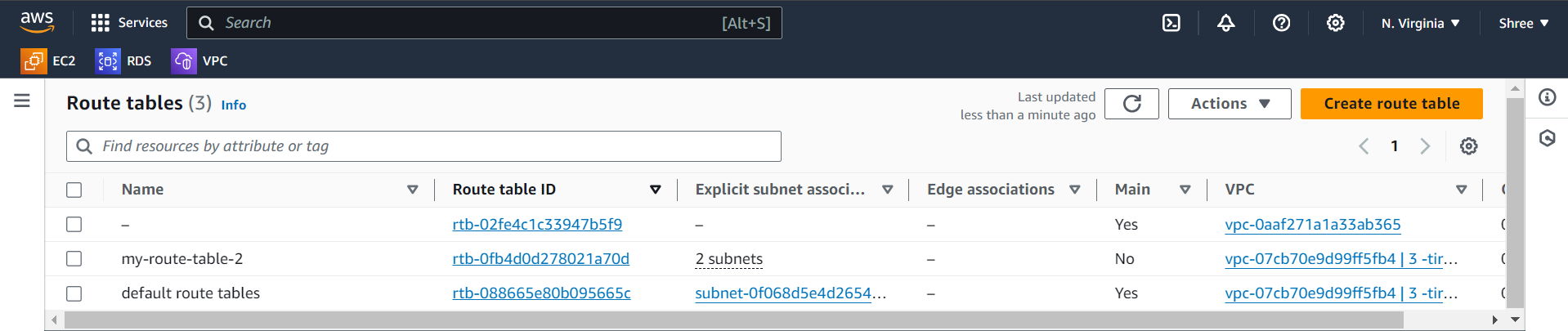
Step 6

Create a net gateway in public subnet



Step 7

Again create a route table and attach that route table to the my-NT-gateway and private subnet-b1, private subnet-c1



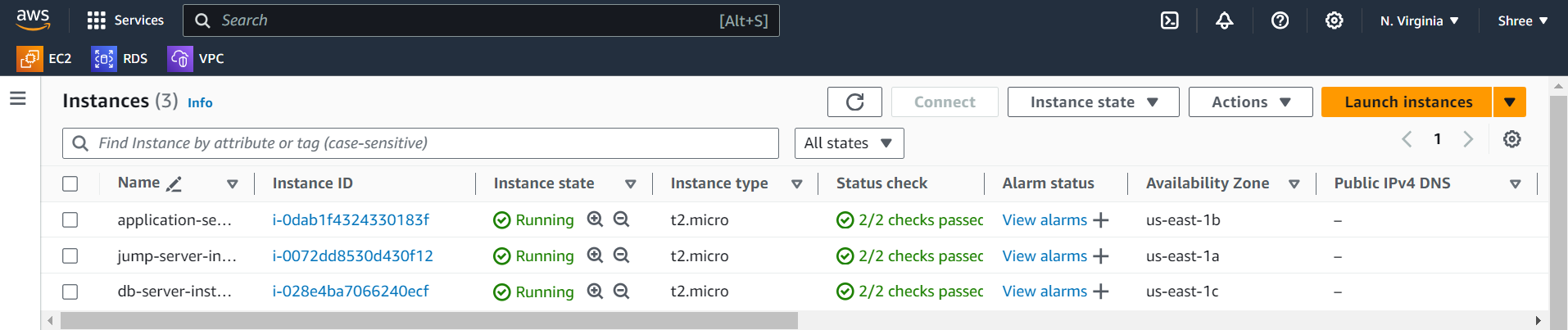
Step 8

Create 3 Instances :

Jump-Server-Instance, VPC (3-tire-project) → Subnet (Public-Subnet-A1) → Security Group (Allow Http/Nginx & SSH Ports) → Allocate Elastic Ip (Yes) → Create Instance.

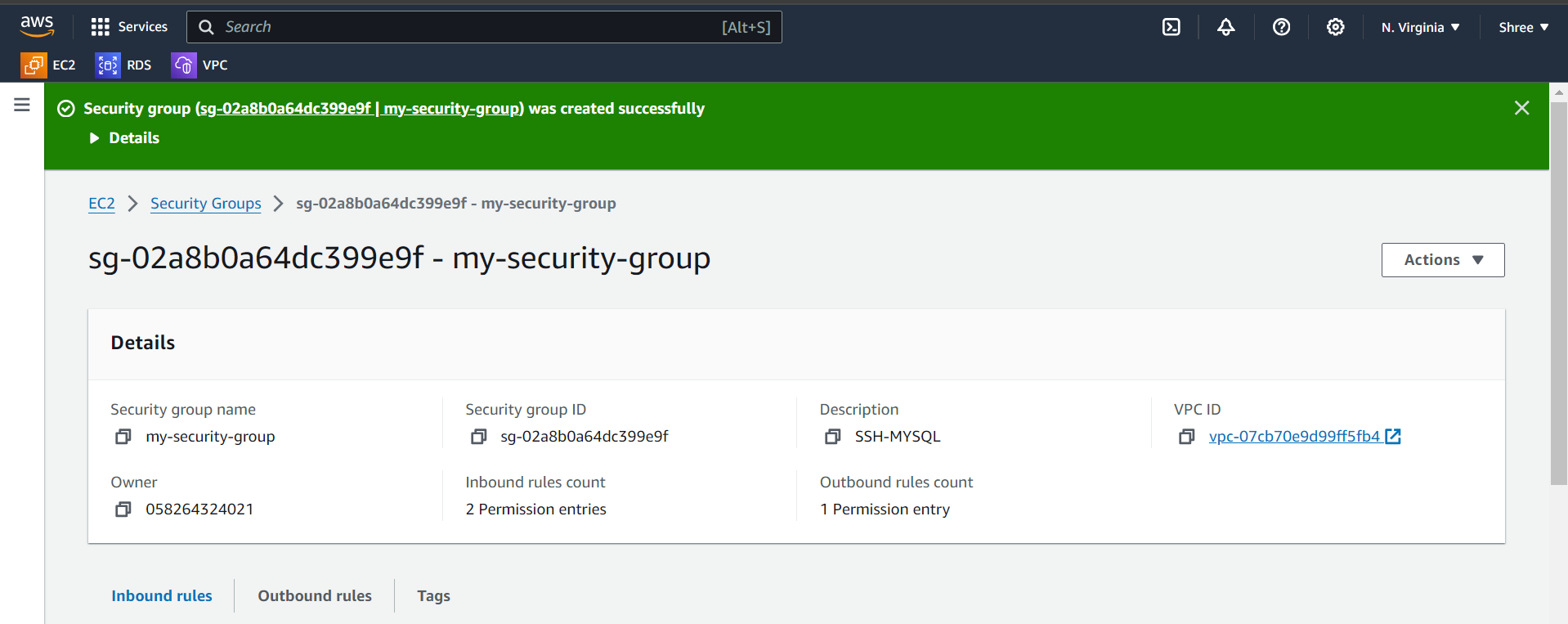
Application-Server-Instance, VPC (3-tire-project) → Subnet (Private-Subnet-B1) → Security Group (Allow Tomcat & SSH Ports) → Create Instance

Db-Server-Instance, VPC (3-tire-project) → Subnet (Private-Subnet-C2) → Security Group (Allow Mysql/Aurora & SSH Ports) → Create Instance



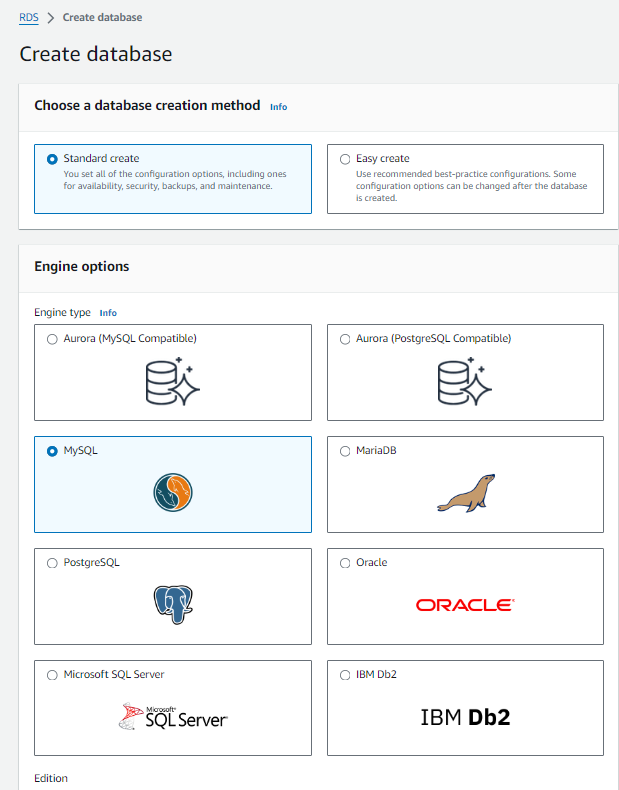
Step 8

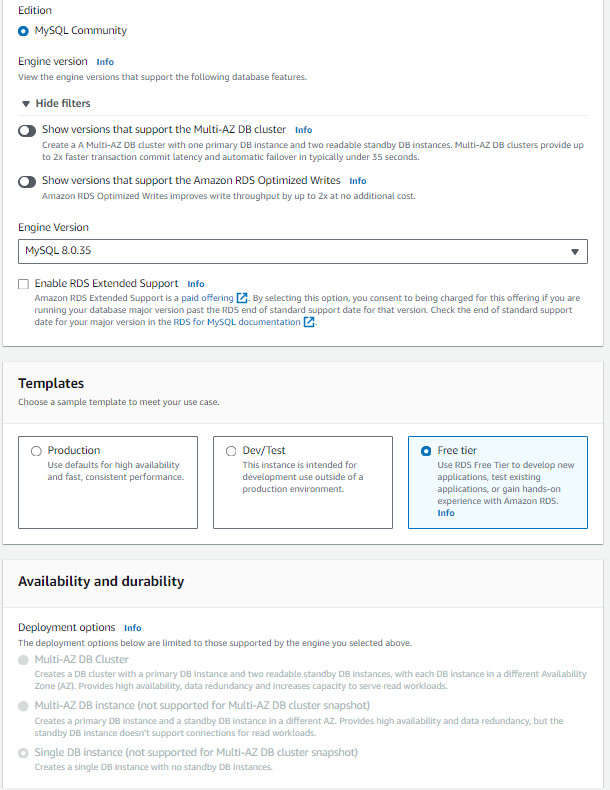
Create a security group and add the ssh-22 port, mysql-3306 port

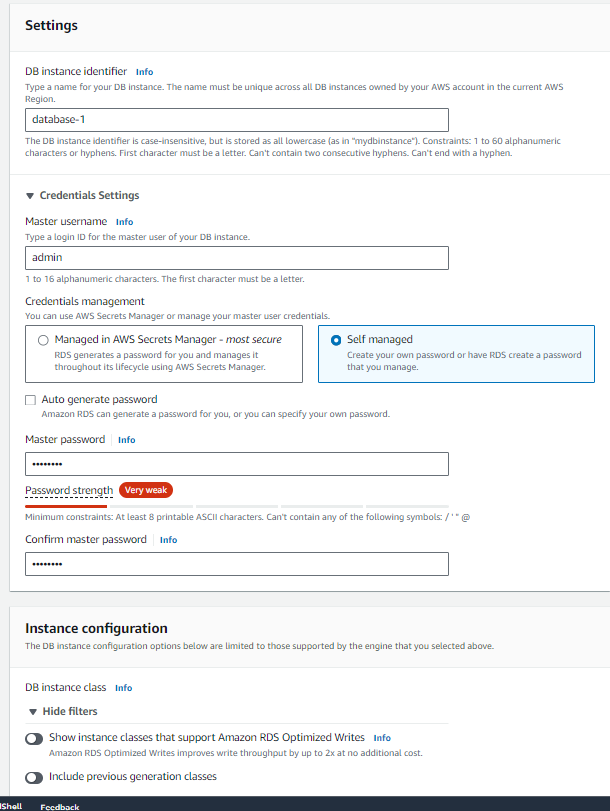


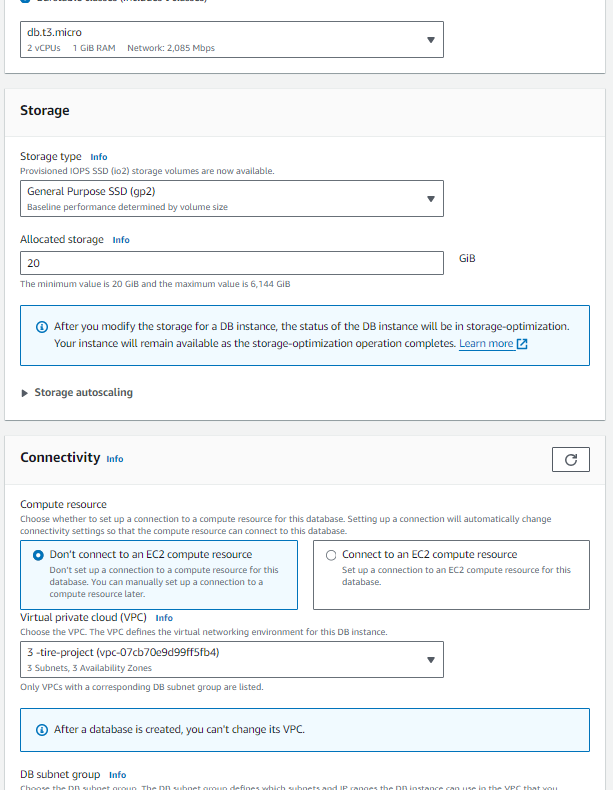
Step 9

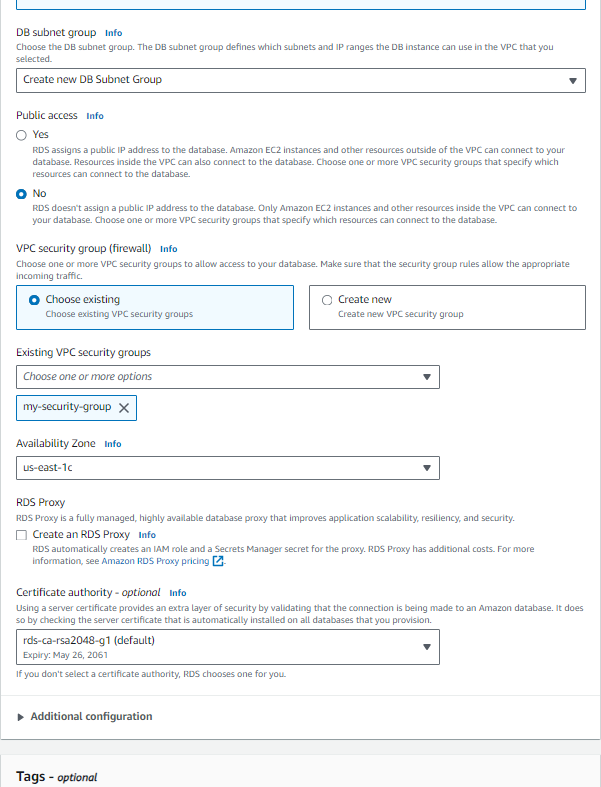
Create one RDS service and add the security group (my security group)

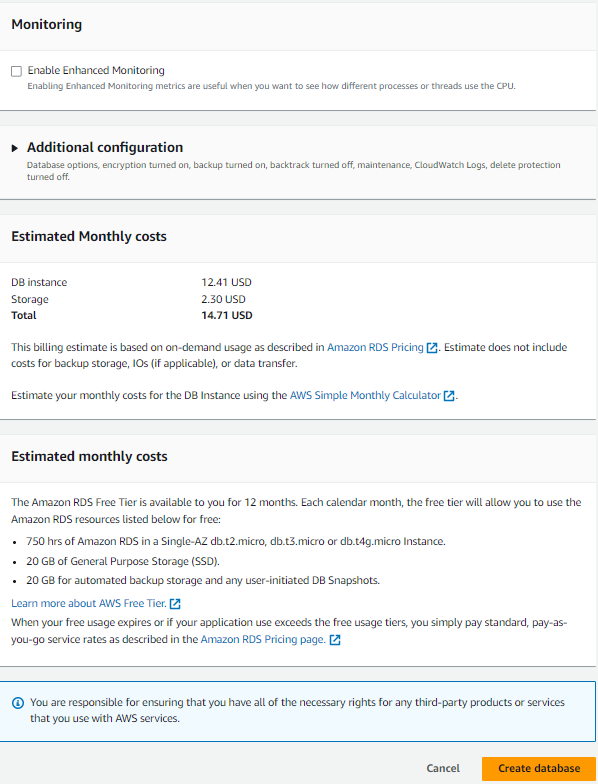












Step 10

• Connect our public instance (jump server) using ssh(mobaxterm)

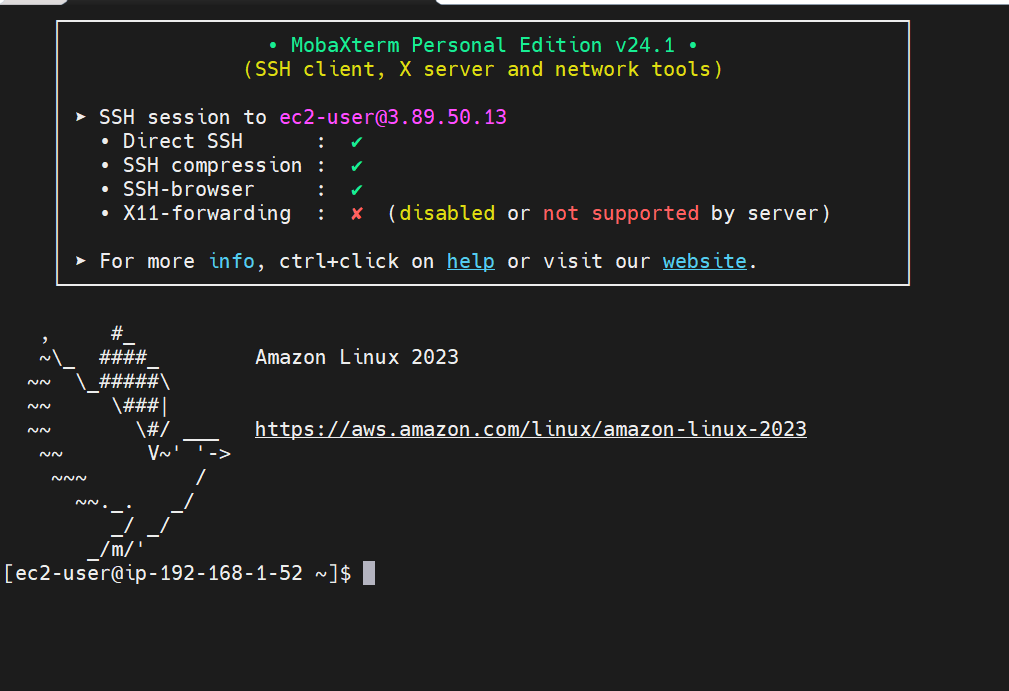
• Sudo –i

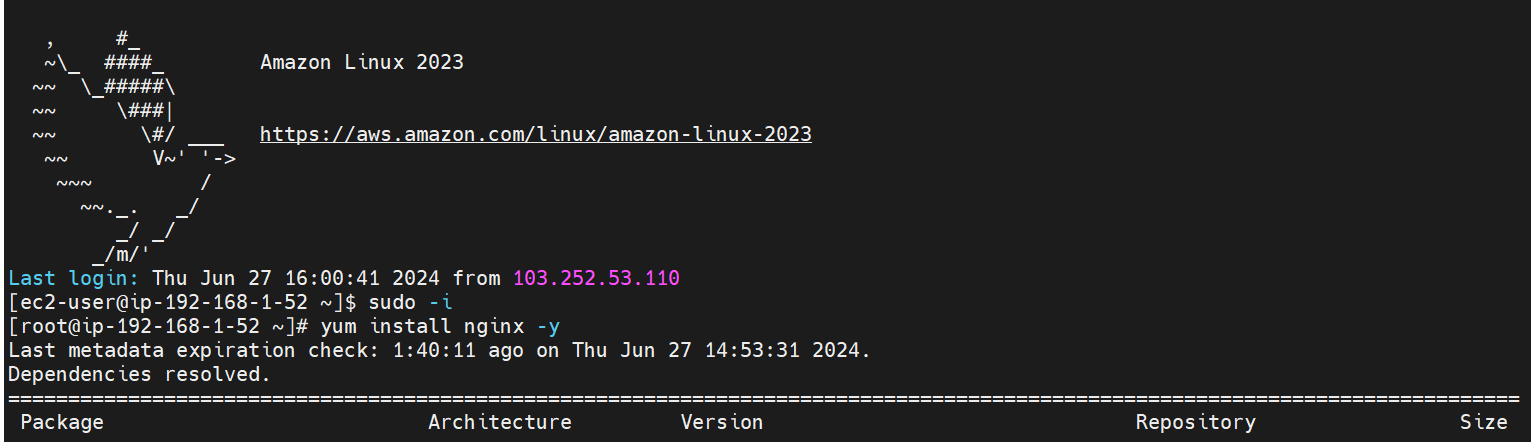
• Yum install nginix –y

• Vim /etc/nginix/nginix.conf

• 49 no line= location / { proxy\_pass <http://privateIPoftomcat:8080/student/>;

• Systemctl restart nginix



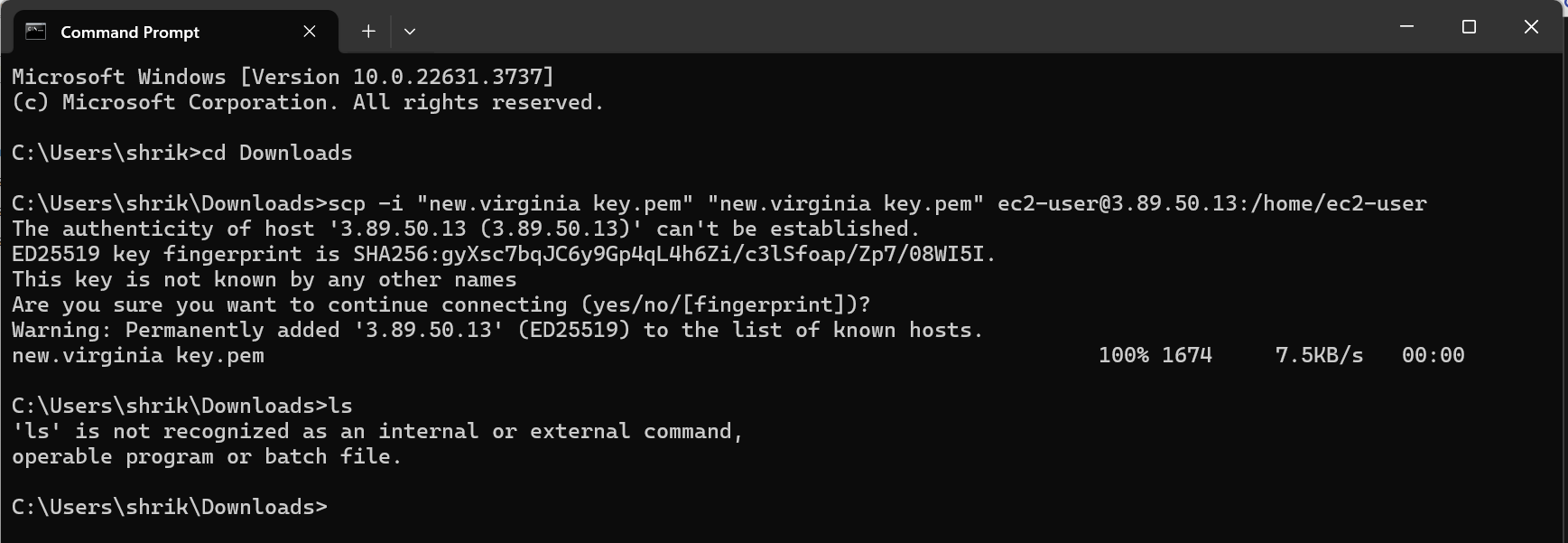




Step 11

Go to command prompt and copy our key

Cd downloads

Scp –i key-name key-name ec2-user@public-ip:/home/ec2-user

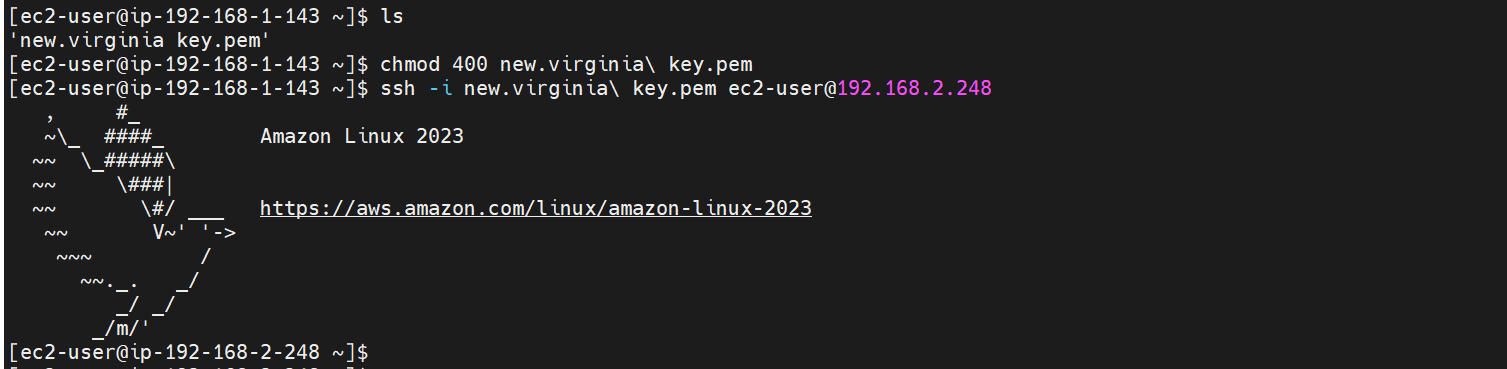
Step 12

Go to jump sever

Ls

Chmod 400 key-name

Ssh –i key-name ec2-user@ipofapplication (we go to jump server to application server)



Step 13

• In application server

• Sudo –i

• Yum install java –y

• curl -O https://dlcdn.apache.org/tomcat/tomcat8/v8.5.100/bin/apache-tomcat-8.5.100.tar.gz

• Ls

• Tar –xvf apache-tomcat-8.5.100.tar.gz -C /opt

• Cd /opt

• Cd apache-tomcat-8.5.100/

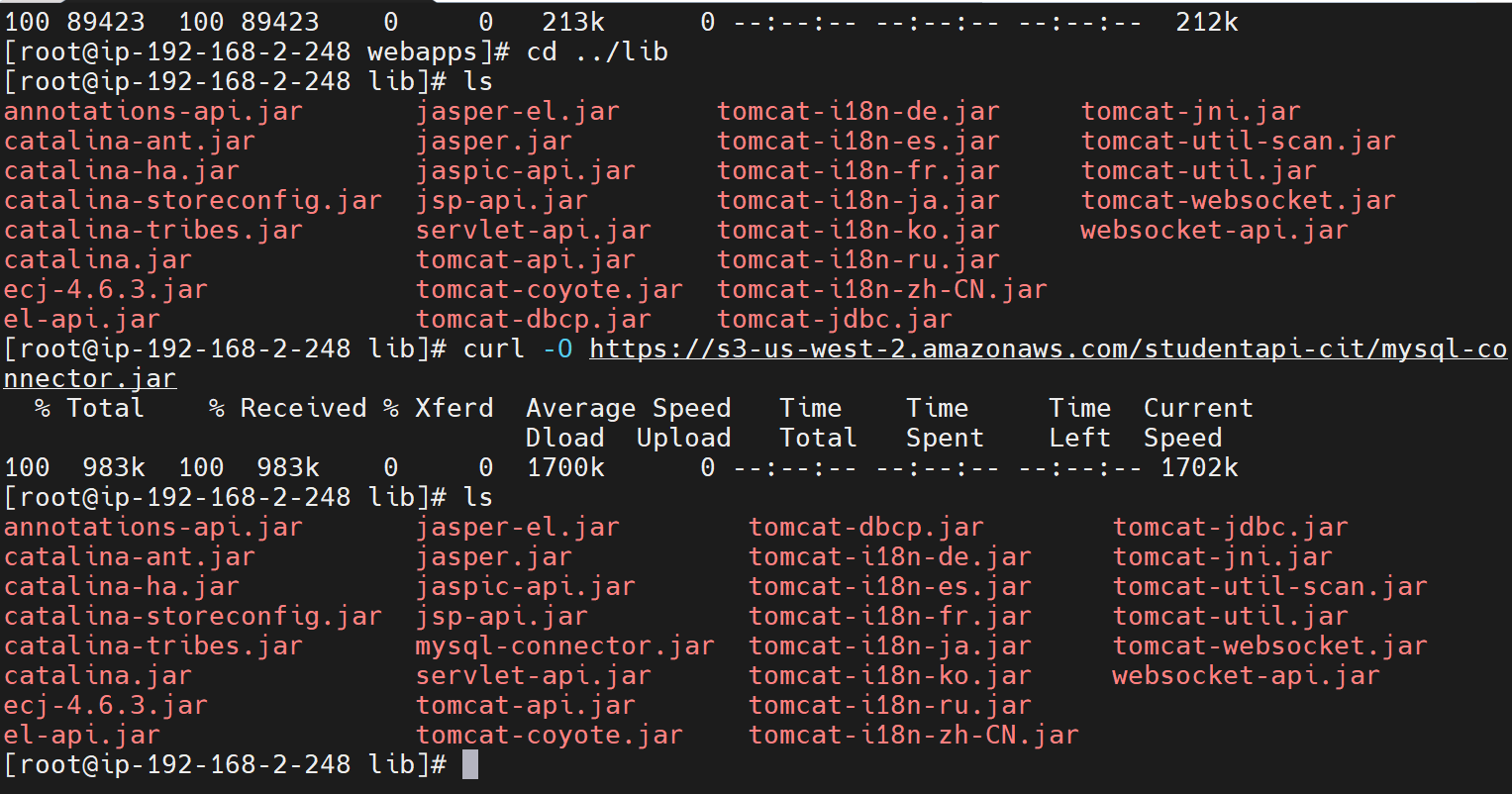
• Cd webapps

• curl -O https://s3-us-west-2.amazonaws.com/studentapicit/student.war

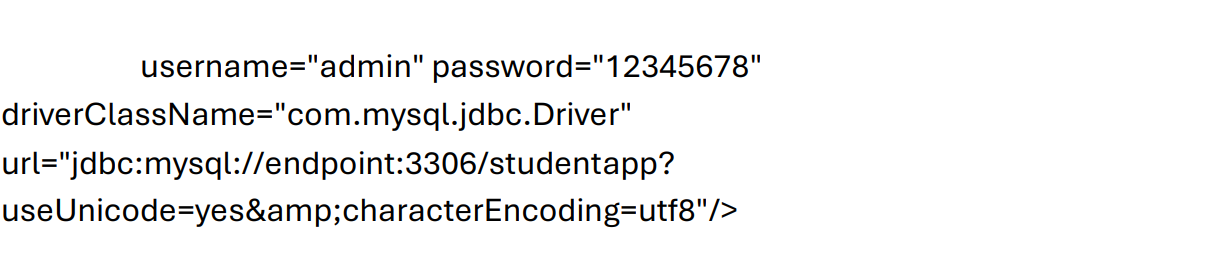
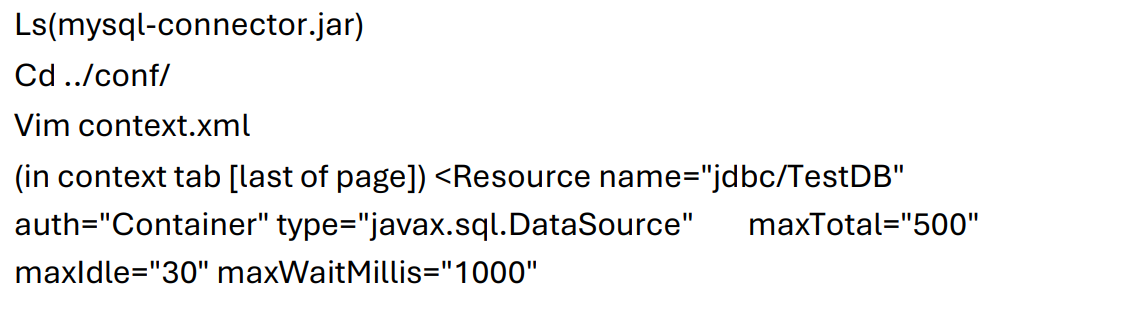
• Cd ../lib

• curl -O https://s3-us-west-2.amazonaws.com/studentapi-cit/mysqlconnector.jar

• Ls(mysql-connector.jar)



Step 14



• Cd ../bin

• ./catalina.sh start

• Exit

Step 15

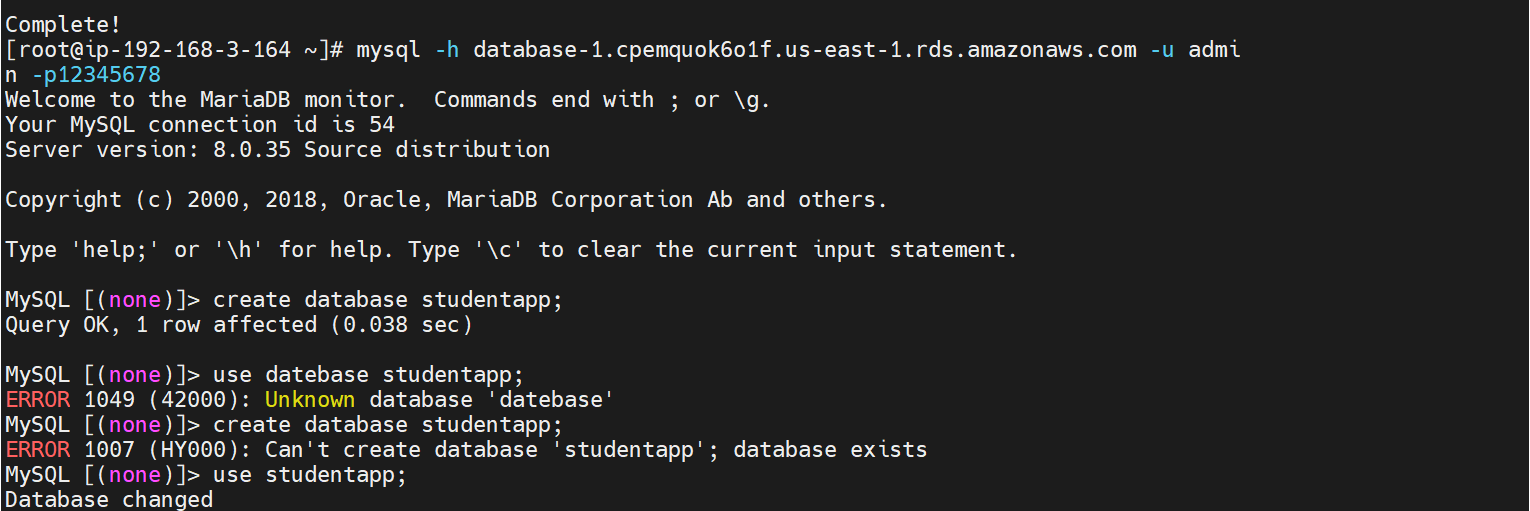
• Ssh –i key-name ec2-user@dbinstanceip (connected to db. instance)

• Yum install mariadb105 –y

• Mysql –h rdsendpoint –u admin –p(connected to RDS)

• Create database; (name database studentapp)

• Use database; (studentapp name)



• CREATE TABLE if not exists students(student\_id INT NOT NULL AUTO\_INCREMENT,

student\_name VARCHAR(100) NOT NULL,

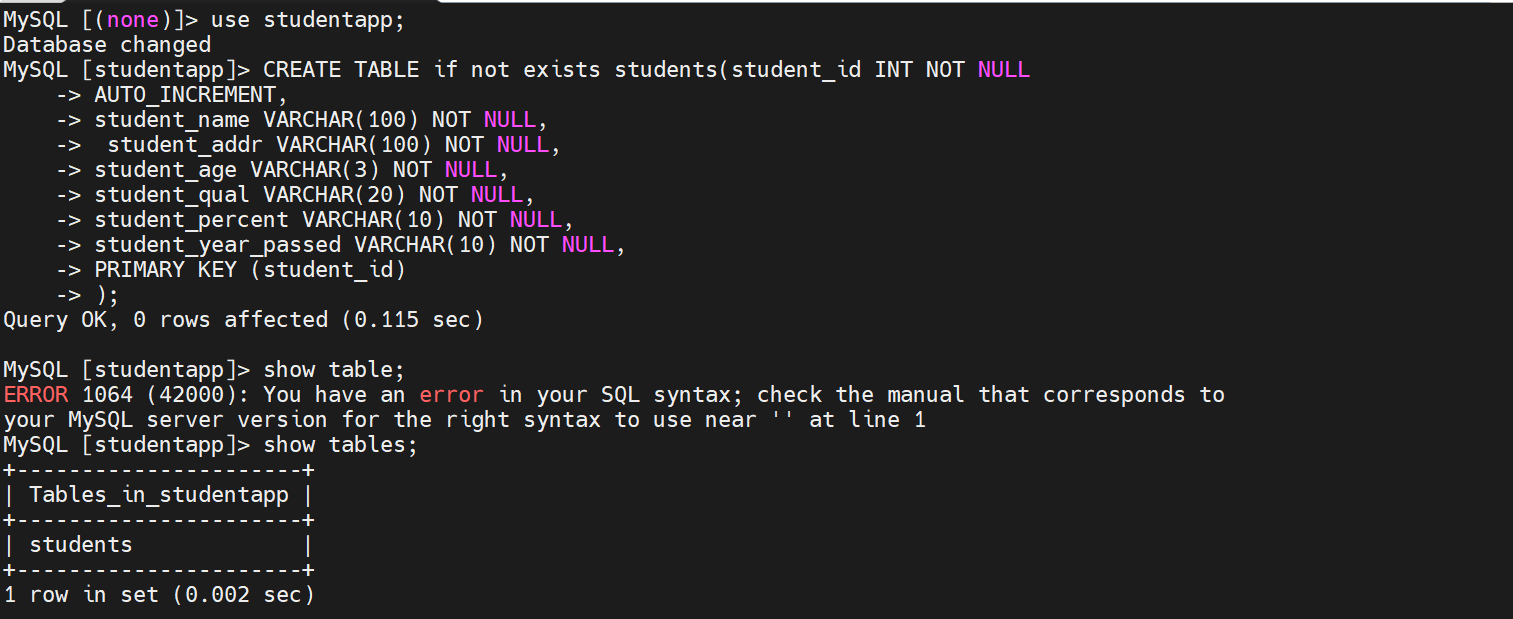
student\_addr VARCHAR(100) NOT NULL,

student\_age VARCHAR(3) NOT NULL,

student\_qual VARCHAR(20) NOT NULL,

student\_percent VARCHAR(10) NOT NULL,

student\_year\_passed VARCHAR(10) NOT NULL, PRIMARY KEY (student\_id) );



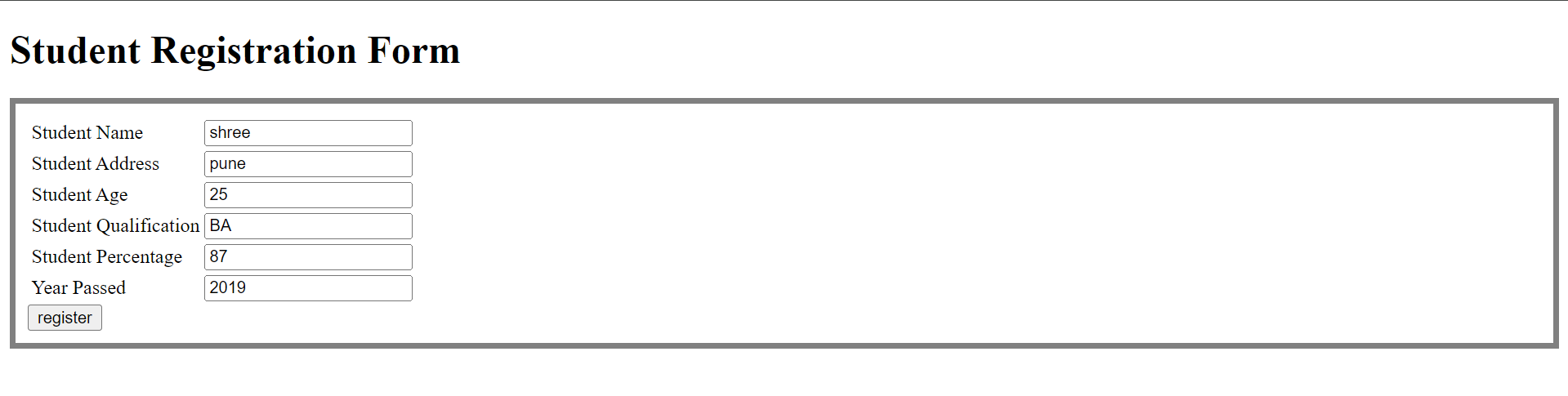
Step 16

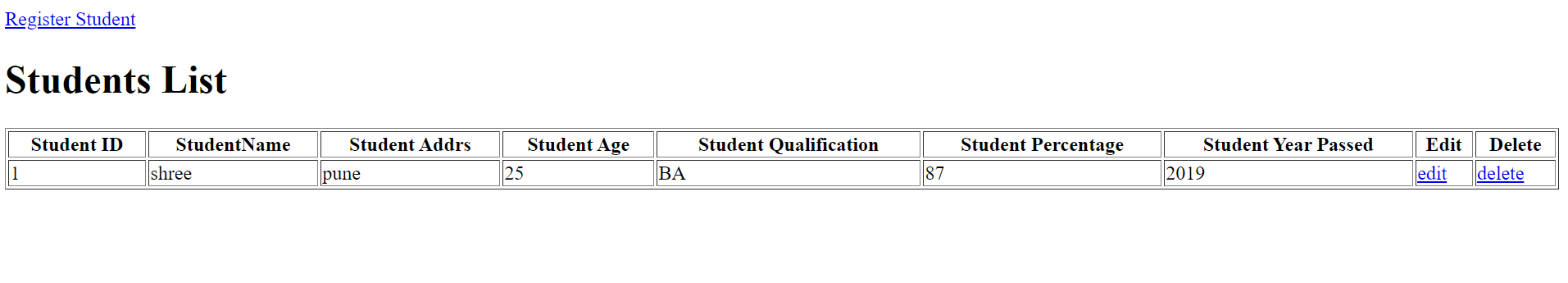
Go to any web browser & hit the Jump-server-instance public IP



Step 17

Fill the Information in student Registration Form





Step -18

MariaDB Configurations: (To view student registration form information)

Select \* from students; 