Created VPC with 1 public 2 private subnets. 3 EC2 instances(Jenkins,httpd,tomcat) in public subnet. RDS creation in private subnet. Hosted Jenkins,httpd webpage, studentapp. Using Terraform.

Script:-
Resource.tf file

```
resource "aws_vpc" "this_vpc"
  {cidr_block = "10.0.0.0/16"
  enable_dns_support = true
  enable_dns_hostnames = true
}
resource "aws_security_group" "this_sg"
  {vpc_id = aws_vpc.this_vpc.id
  name   = "this_sg"
  ingress {
    from_port   = 80
    to_port     = 80
    protocol    = "TCP"
    cidr_blocks = ["0.0.0.0/0"]
  }
  ingress
    { from_port = 443
    to_port     = 443
    protocol    = "TCP"
    cidr_blocks = ["0.0.0.0/0"]
  }
  ingress
    { from_port = 22
    to_port     = 22
    protocol    = "TCP"
    cidr_blocks = ["0.0.0.0/0"]
  }
  ingress {
    from_port   = 8080
    to_port     = 8080
    protocol    = "TCP"
    cidr_blocks = ["0.0.0.0/0"]
  }
  ingress {
    from_port   = 3306
    to_port     = 3306
    protocol    = "TCP"
    cidr_blocks = ["0.0.0.0/0"]
  }
  egress
    { from_port = 0
    to_port     = 0
    protocol    = "-1"
    cidr_blocks = ["0.0.0.0/0"]
  }
}
resource "aws_subnet" "public" {
  vpc_id            = aws_vpc.this_vpc.id
  cidr_block        = "10.0.1.0/24"
  availability_zone = "ap-southeast-1a"
  tags = {
    Name = "public"
  }
  map_public_ip_on_launch = true
}
```

```
resource "aws_subnet" "private" {
  vpc_id            = aws_vpc.this_vpc.id
  cidr_block        = "10.0.2.0/24"
  availability_zone = "ap-southeast-1b"
  tags = {
    Name = "private"
  }
  map_public_ip_on_launch = false
}
resource "aws_subnet" "private2"
  { vpc_id          = aws_vpc.this_vpc.id
  cidr_block        = "10.0.3.0/24"
  availability_zone = "ap-southeast-1c"
  tags = {
    Name = "private2"
  }
  map_public_ip_on_launch = false
}
resource "aws_internet_gateway" "this_ig"
  {vpc_id = aws_vpc.this_vpc.id
  tags = {
    Name = "this_ig"
  }
}
resource "aws_network_interface" "ninter"
  {subnet_id = aws_subnet.public.id
  tags = {
    Name = "ninter"
  }
}
resource "aws_route_table" "this_rt"
  {vpc_id = aws_vpc.this_vpc.id
  route {
    cidr_block = "0.0.0.0/0"
    gateway_id = aws_internet_gateway.this_ig.id
    }
  tags = {
    Name = "this_rt"
  }
}
resource "aws_route_table_association" "route_association"
   {subnet_id     = aws_subnet.public.id
   route_table_id = aws_route_table.this_rt.id
 }
resource "aws_instance" "this_instance"
  {ami                  = var.aws_ami
  instance_type         = var.aws_instance_type
  vpc_security_group_ids = [aws_security_group.this_sg.id]
  subnet_id             = aws_subnet.public.id
  tags = {
    Name = "this_instance"
  }
  root_block_device
    { volume_size =
    var.volume_size
  }
  user_data        = <<-EOF
    #!/bin/bash
    sudo yum update -y
    sudo wget -O /etc/yum.repos.d/jenkins.repo \
    https://pkg.jenkins.io/redhat-stable/jenkins.repo
    sudo rpm --import https://pkg.jenkins.io/redhat-stable/jenkins.io-2023.key
```

```
    sudo yum upgrade
    sudo dnf install java-17-amazon-corretto -y
    sudo yum install jenkins -y
    sudo systemctl enable jenkins
    sudo systemctl start jenkins
    EOF
}
resource "aws_db_subnet_group" "this_subnet_group"
  {name      = "this_subnet_group"
  subnet_ids = [aws_subnet.private.id, aws_subnet.private2.id]
  tags = {
    Name = "this_subnet_group"
  }
}
resource "aws_db_instance" "this_db"
  { allocated_storage = var.volume_size
  instance_class    = var.aws_db_instance_class
  engine            = var.aws_db_engine
  engine_version    = var.aws_db_engine_version
  username          = var.aws_db_master_username
  password          = var.aws_db_master_user_password
  port              = var.aws_db_port
  storage_type      = var.aws_db_storage_type
  tags = {
    Name = var.aws_db_name
  }
  vpc_security_group_ids = [aws_security_group.this_sg.id]
  db_subnet_group_name   = aws_db_subnet_group.this_subnet_group.name
}
resource "aws_instance" "apache"
  { ami                  = var.aws_ami
  instance_type          = var.aws_instance_type
  vpc_security_group_ids = [aws_security_group.this_sg.id]
  subnet_id              = aws_subnet.public.id
  tags = {
    Name = "apache"
  }
  root_block_device
    { volume_size =
    var.volume_size
  }
  user_data        = <<-EOF
  #!/bin/bash
  sudo -i
  yum install httpd -y
  echo "hello guys" >> /var/www/html/index.html
  systemctl start httpd
  systemctl enable httpd
  EOF
}
resource "aws_instance" "tomcat"
  { ami                  = var.aws_ami
  instance_type          = var.aws_instance_type
  vpc_security_group_ids = [aws_security_group.this_sg.id]
  subnet_id              = aws_subnet.public.id
  tags = {
```

```
  }
  root_block_device
    { volume_size =
    var.volume_size
```

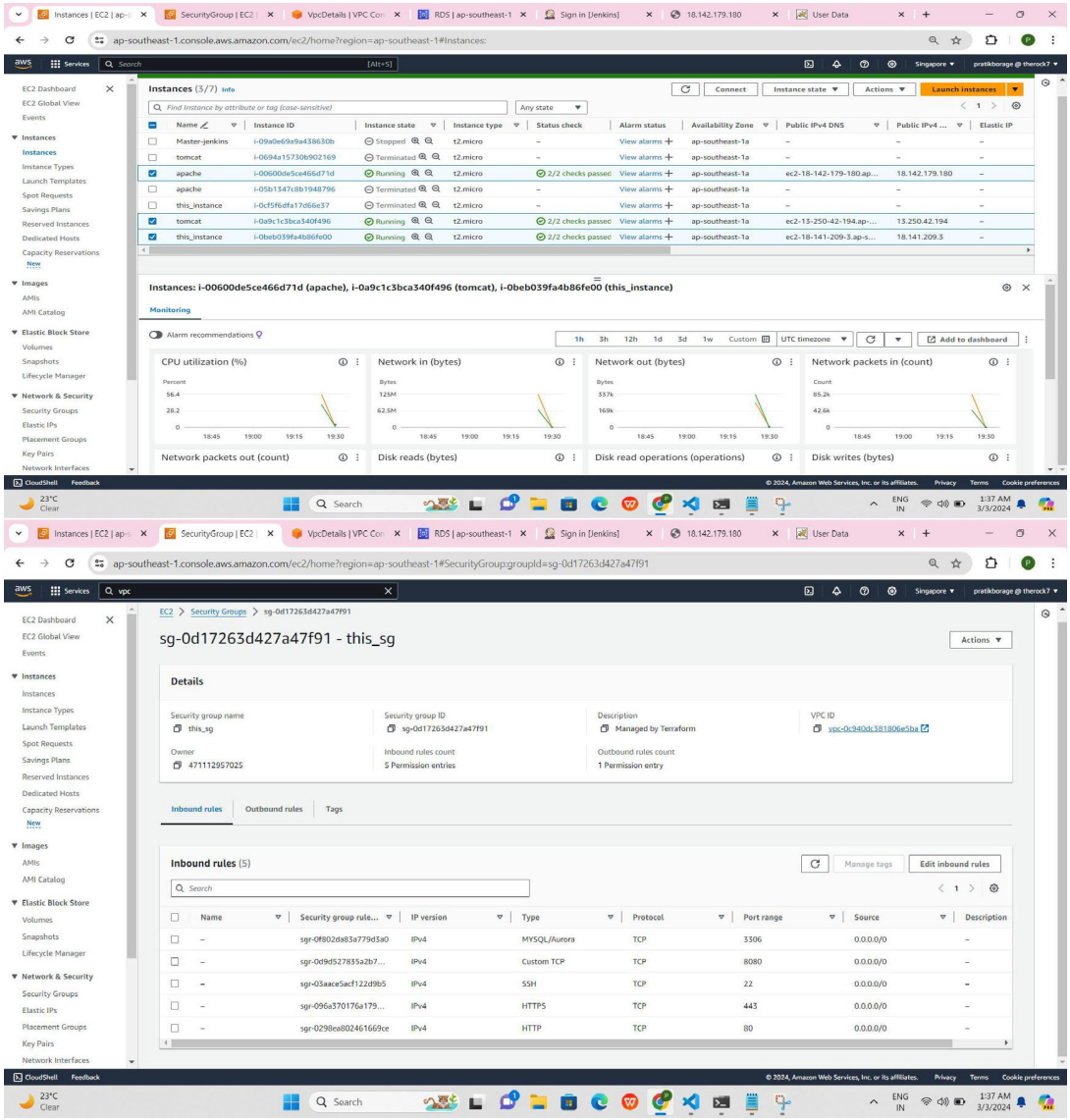
```
  user_data        = <<-EOF
  #!/bin/bash
  sudo -i
  curl -O https://dlcdn.apache.org/tomcat/tomcat-8/v8.5.99/bin/apache-tomcat-8.5.99.tar.gz
  tar -xzvf apache-tomcat-8.5.99.tar.gz
  yum install git -y
  git init
  git clone https://github.com/PratikBorge/Webapps.git
  mv Webapps/student.war /apache-tomcat-8.5.99/webapps
  mv Webapps/mysql-connector.jar /apache-tomcat-8.5.99/lib
  yum install java -y
  bash /apache-tomcat-8.5.99/bin/catalina.sh start
  EOF
}
output "creations"
  {value = [
    aws_instance.this_instance.id,
    aws_db_instance.this_db.id,
    aws_instance.apache.id,
    aws_instance.tomcat.id,
    aws_internet_gateway.this_ig.id,
    aws_route_table.this_rt.id,
    aws_security_group.this_sg.id,
    aws_subnet.public.id,
    aws_subnet.private.id,
    aws_vpc.this_vpc.id,
    aws_db_subnet_group.this_subnet_group.id
  ]
}
```

Var.tf file

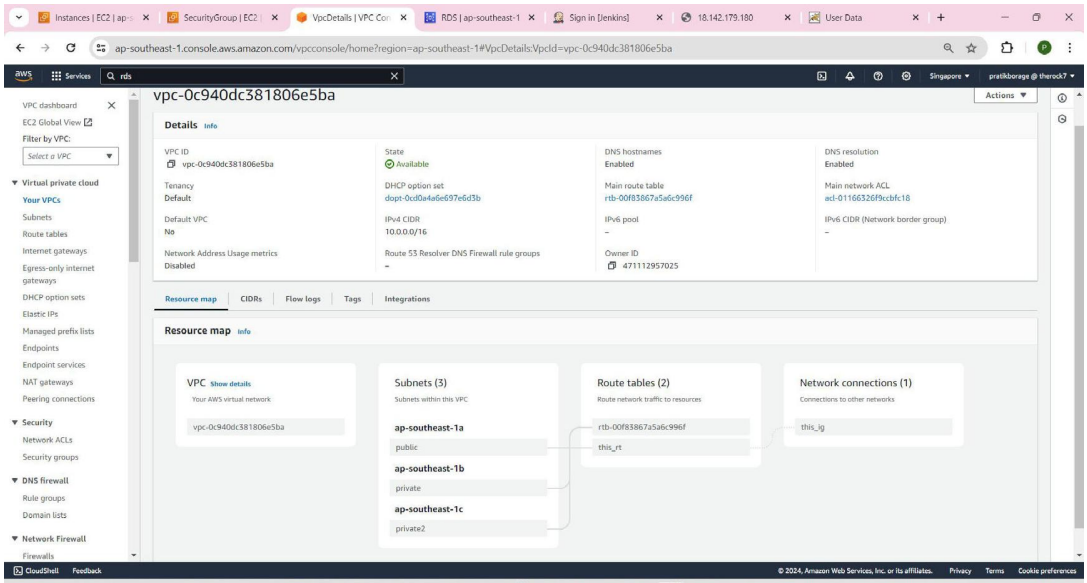
```
variable "aws_instance_type"
  {type   = string
  default = "t2.micro"

}
variable "aws_ami"
  {type   = string
  default = "ami-07a6e3b1c102cdba8"
}
variable "volume_size"
  {type   = number
  default = 10
}
variable "aws_db_engine"
  {type   = string
  default = "mysql"
}
variable "aws_db_engine_version"
  {type   = string
  default = "5.7"
}
variable "aws_db_instance_class"
  {type   = string
  default = "db.t2.micro"
}
variable "aws_db_master_user_password" {
```

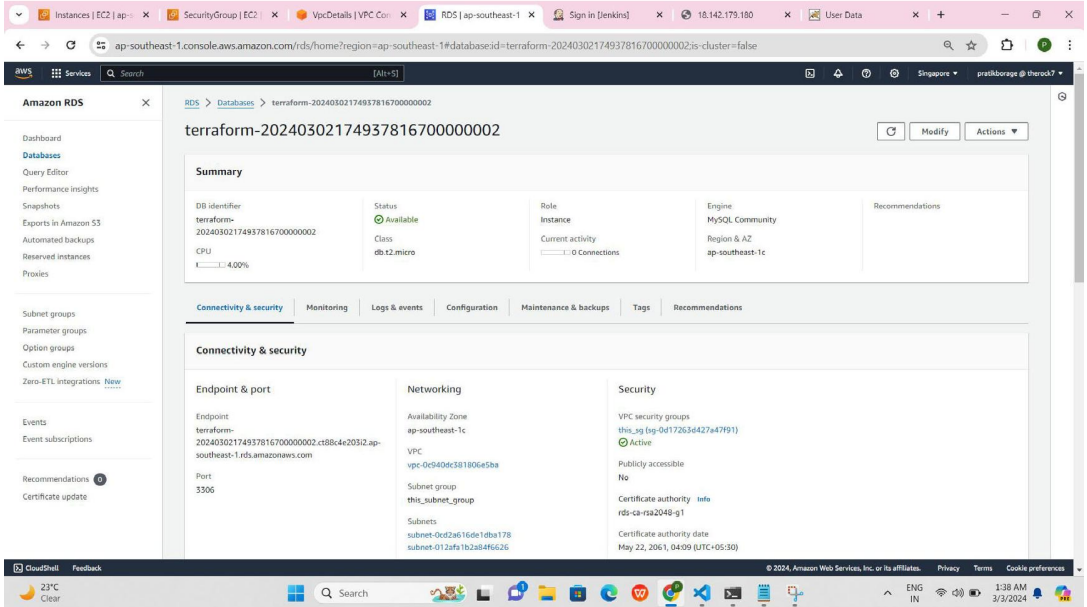
```
  type    = string
  default = "12345678"
}
variable "aws_db_master_username"
  {type   = string
  default = "prat"
}
variable "aws_db_name"
  {type   = string
  default = "pratik"
}
variable "aws_db_port"
  {type   = string
  default = "3306"
}
variable "aws_db_storage_type"
  {type   = string
  default = "gp2"
}
```

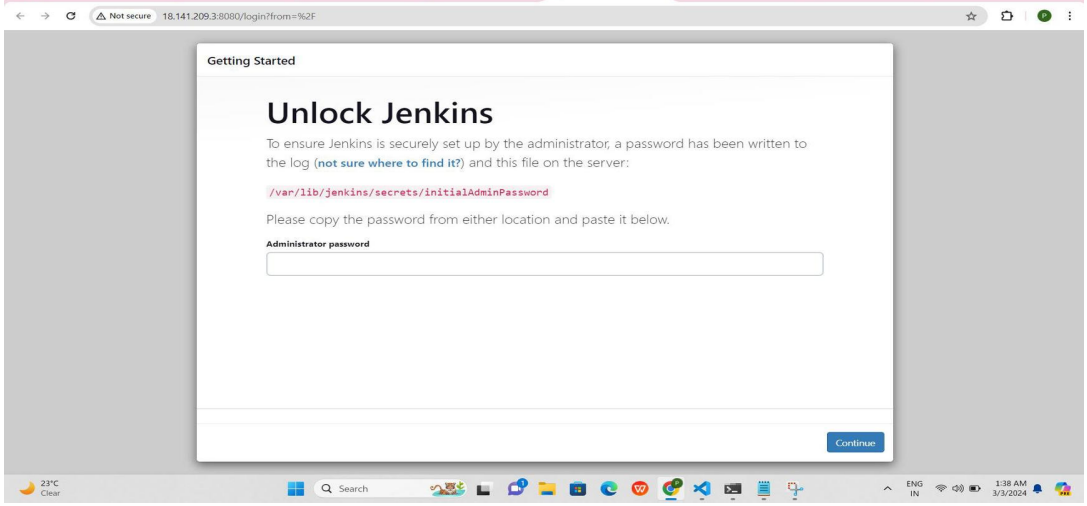
Resources Created:-



Pratik Chandrakant Borge







Pratik Chandrakant Borge