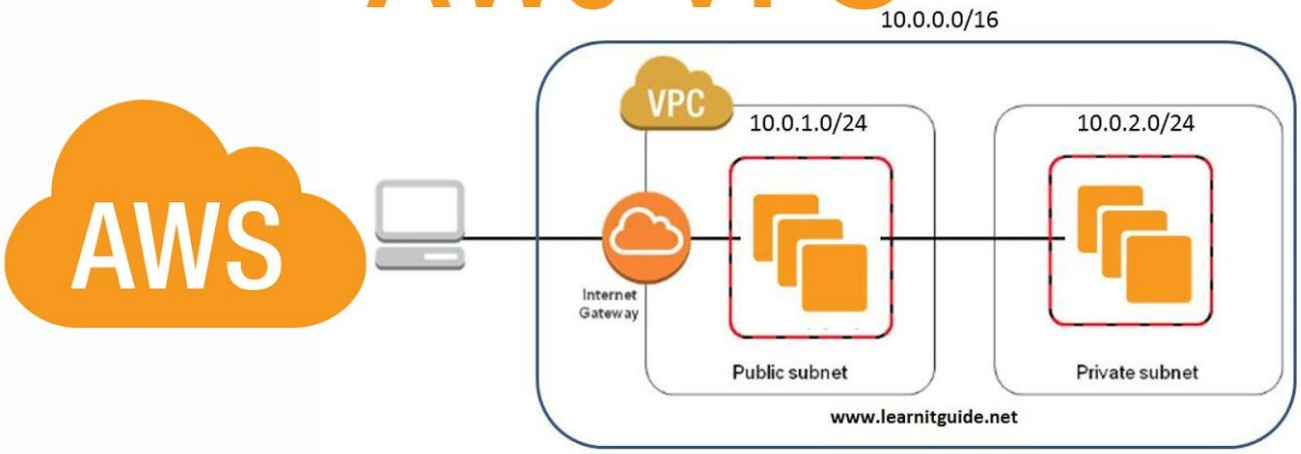
AWS VPC



HOW TO CREATE NEW VPC SUBNETS, INTERNET GATEWAY

Terraform

Amazon Machine Image (AMI)

aws

Amazon EC2

Task 3

Statement: We have to create a web portal for our company with all the security as much as possible.
So, we use Wordpress software with dedicated database server.
Database should not be accessible from the outside world for security purposes.
We only need to public the WordPress to clients.
So here are the steps for proper understanding!

Steps:-
1) Write a Infrastructure as code using terraform, which automatically create a VPC.

2) In that VPC we have to create 2 subnets:
   a) public subnet [Accessible for Public World!]
   b) private subnet [Restricted for Public World!]

3) Create a public facing internet gateway for connect our VPC/Network to the internet world and attach this gateway to our VPC.

4) Create a routing table for Internet gateway so that instance can connect to outside world, update and associate it with public subnet.

5) Launch an ec2 instance which has Wordpress setup already having the security group allowing port 80 so that our client can connect to our wordpress site.
Also attach the key to instance for further login into it.

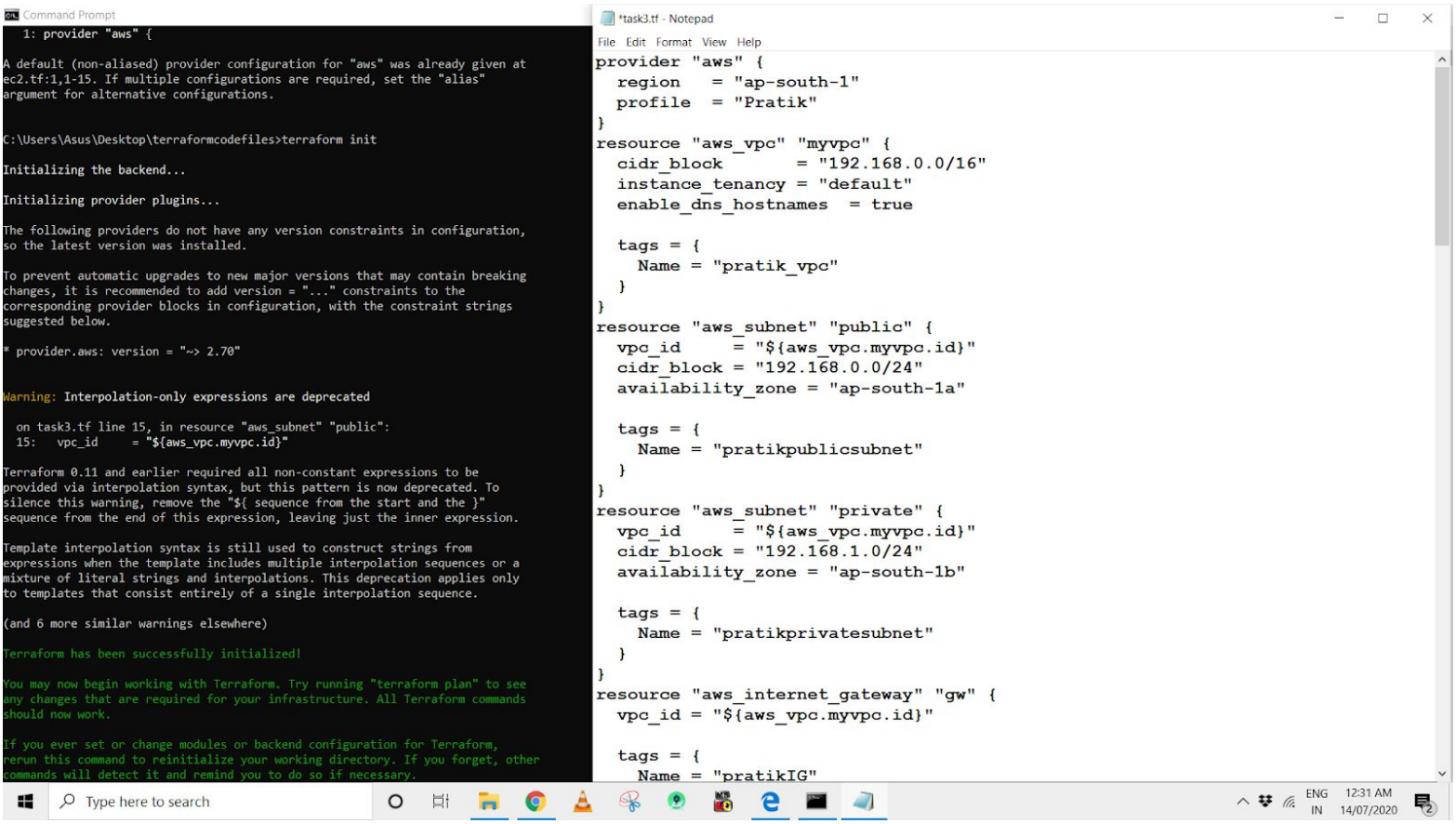
6) Launch an ec2 instance which has MYSQL setup already with security group allowing port 3306 in private subnet so that our wordpress vm can connect with the same.
Also attach the key with the same.

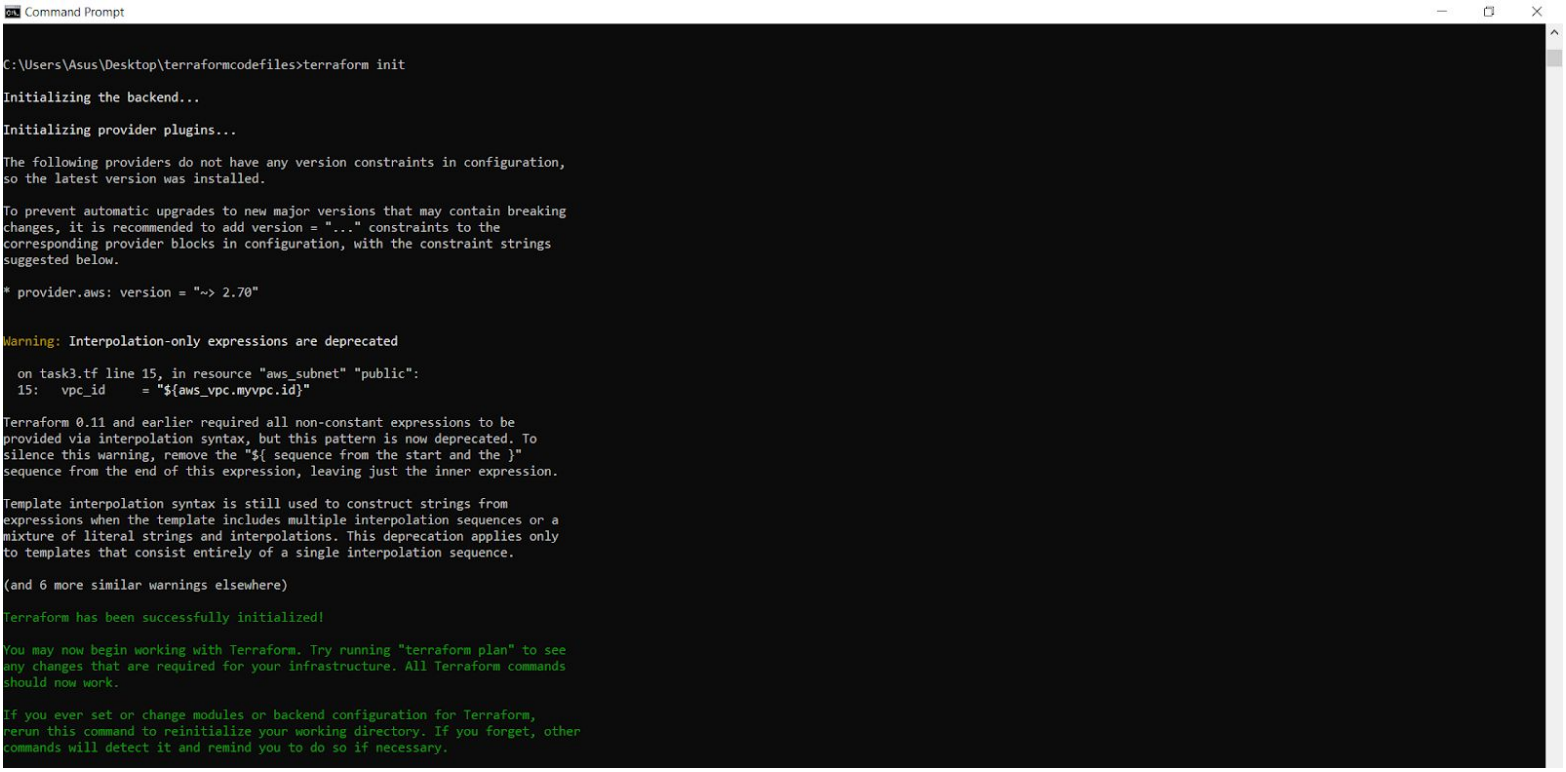
Note: Wordpress instance has to be part of public subnet so that our client can connect our site.
mysql instance has to be part of private subnet so that outside world can't connect to it.
Don't forgot to add auto ip assign and auto dns name assignment option to be enabled.

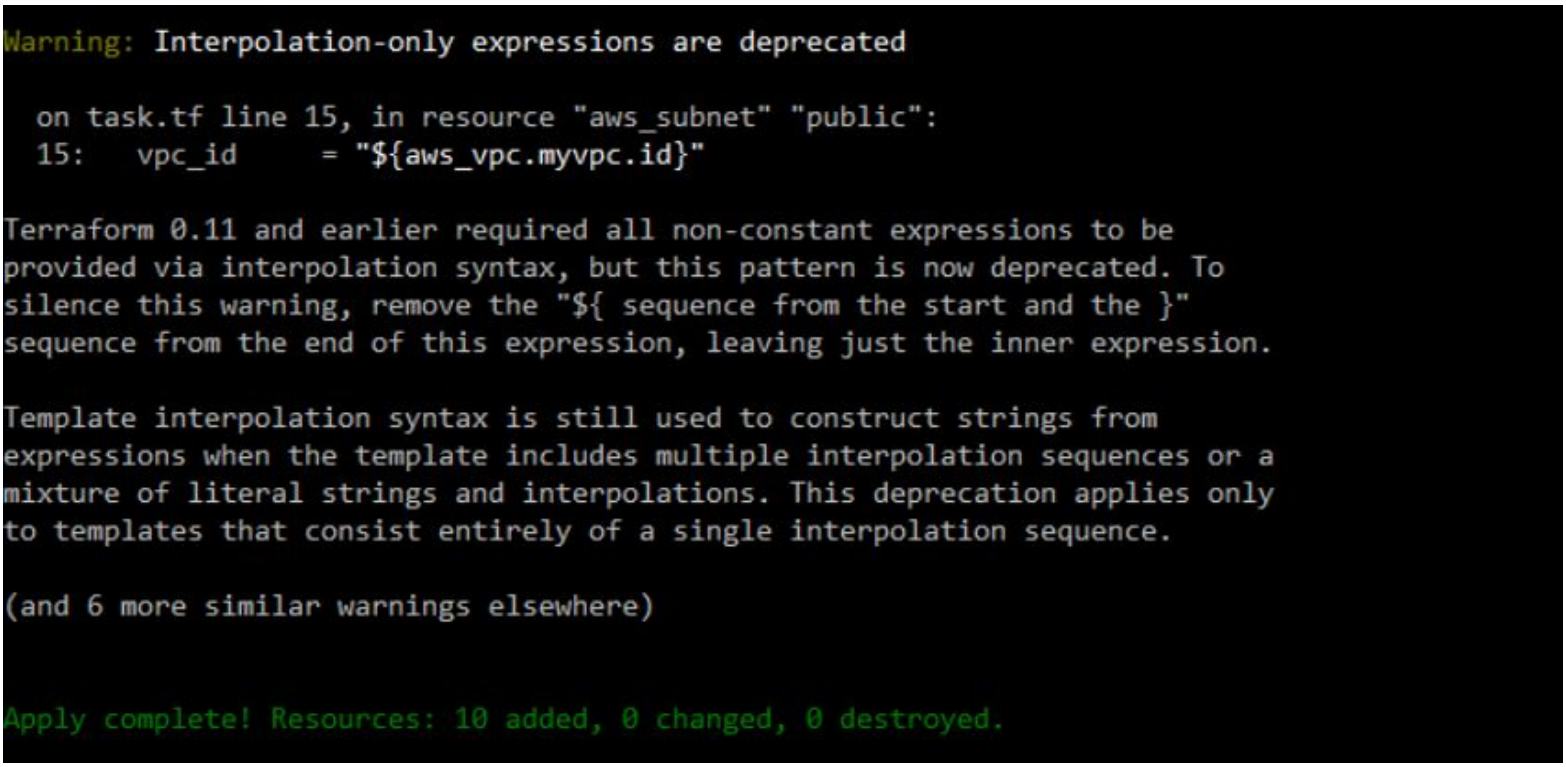
Command prompt :-

Command Prompt

```
Microsoft Windows [Version 10.0.18362.900]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\Asus>cd desktop

C:\Users\Asus\Desktop>terraformcodefiles
'terraformcodefiles' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\Asus\Desktop>cd terraformcodefiles

C:\Users\Asus\Desktop\terraformcodefiles>notepad task3.tf
```



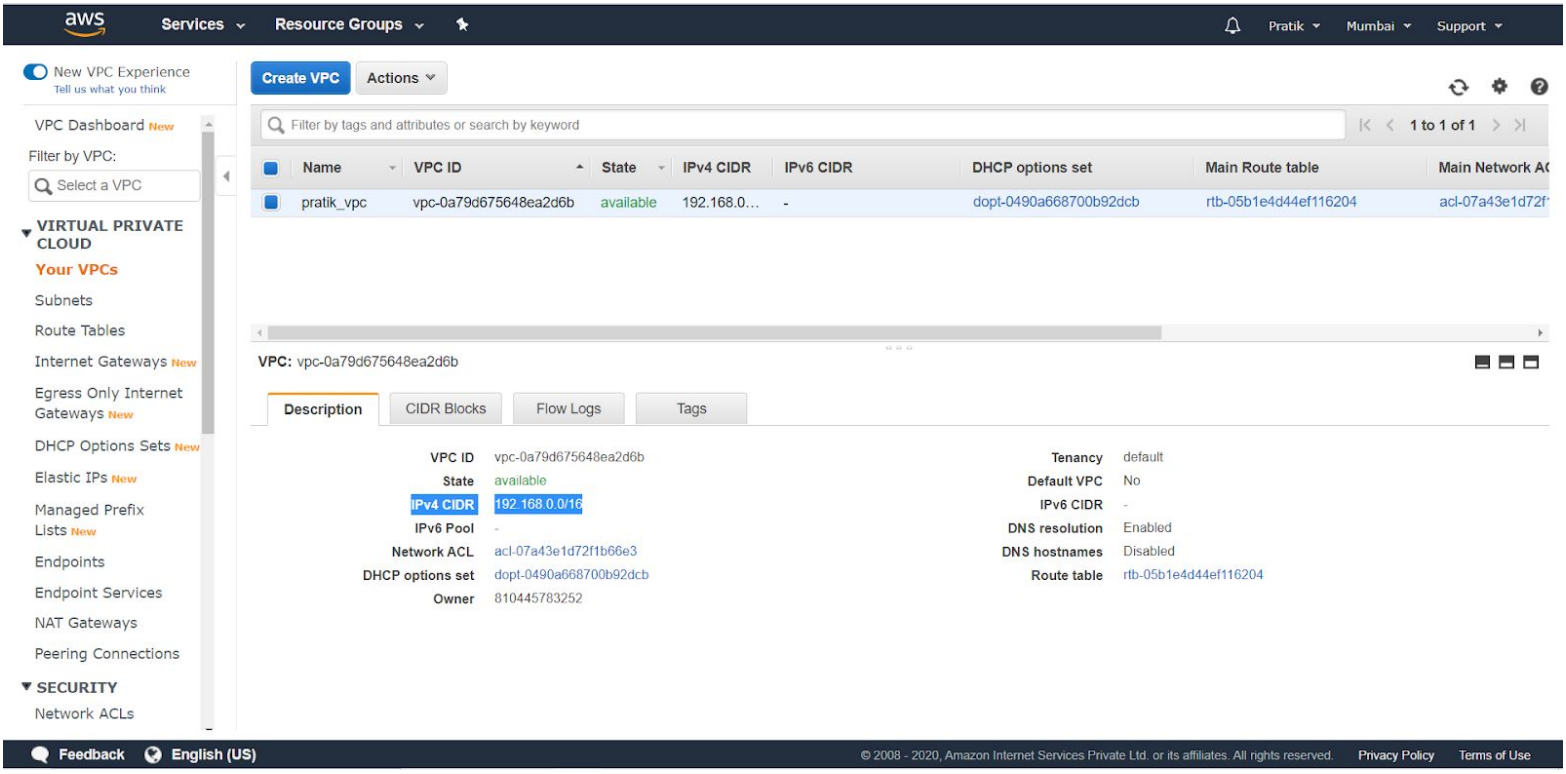




1.login in aws and create a vpc

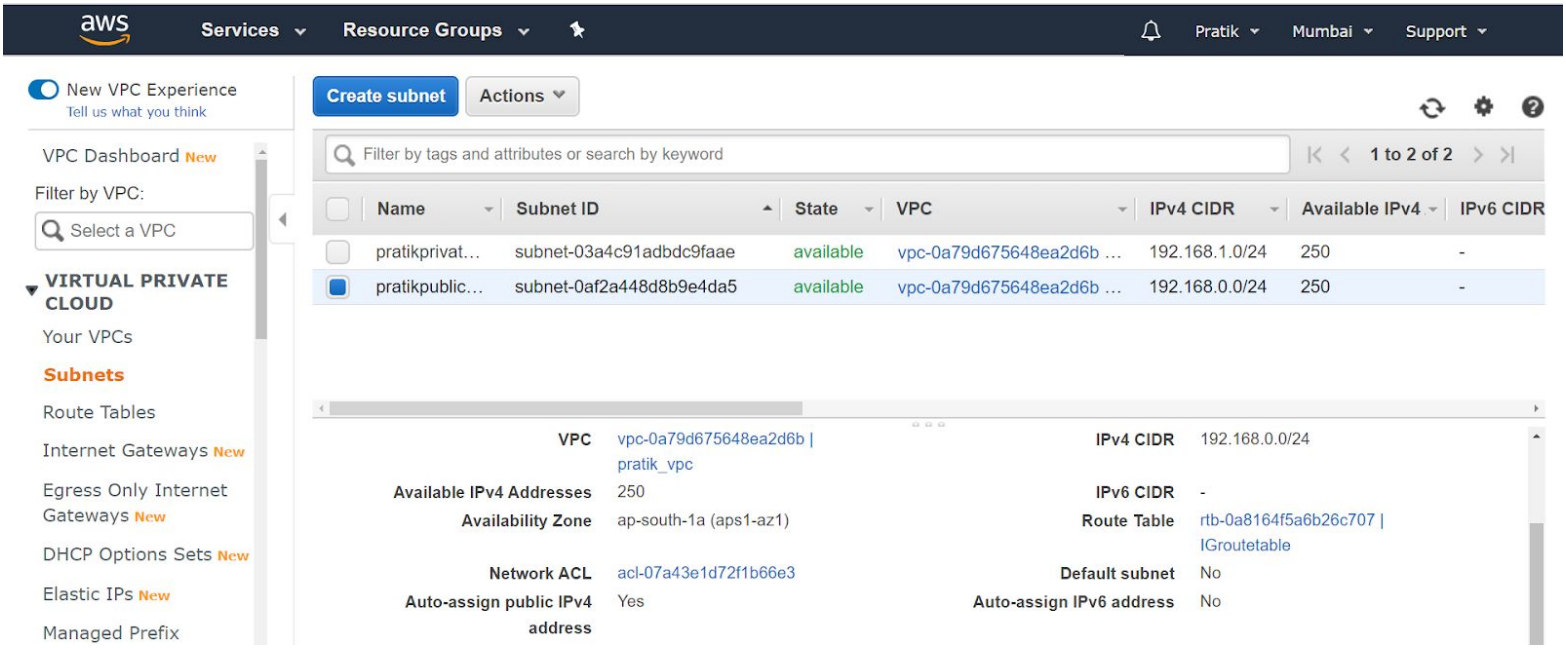
```
provider "aws" {
  region   = "ap-south-1"
  profile  = "Pratik"
}
resource "aws_vpc" "myvpc" {
  cidr_block       = "192.168.0.0/16"
  instance_tenancy = "default"
  enable_dns_hostnames  = true

  tags = {
```

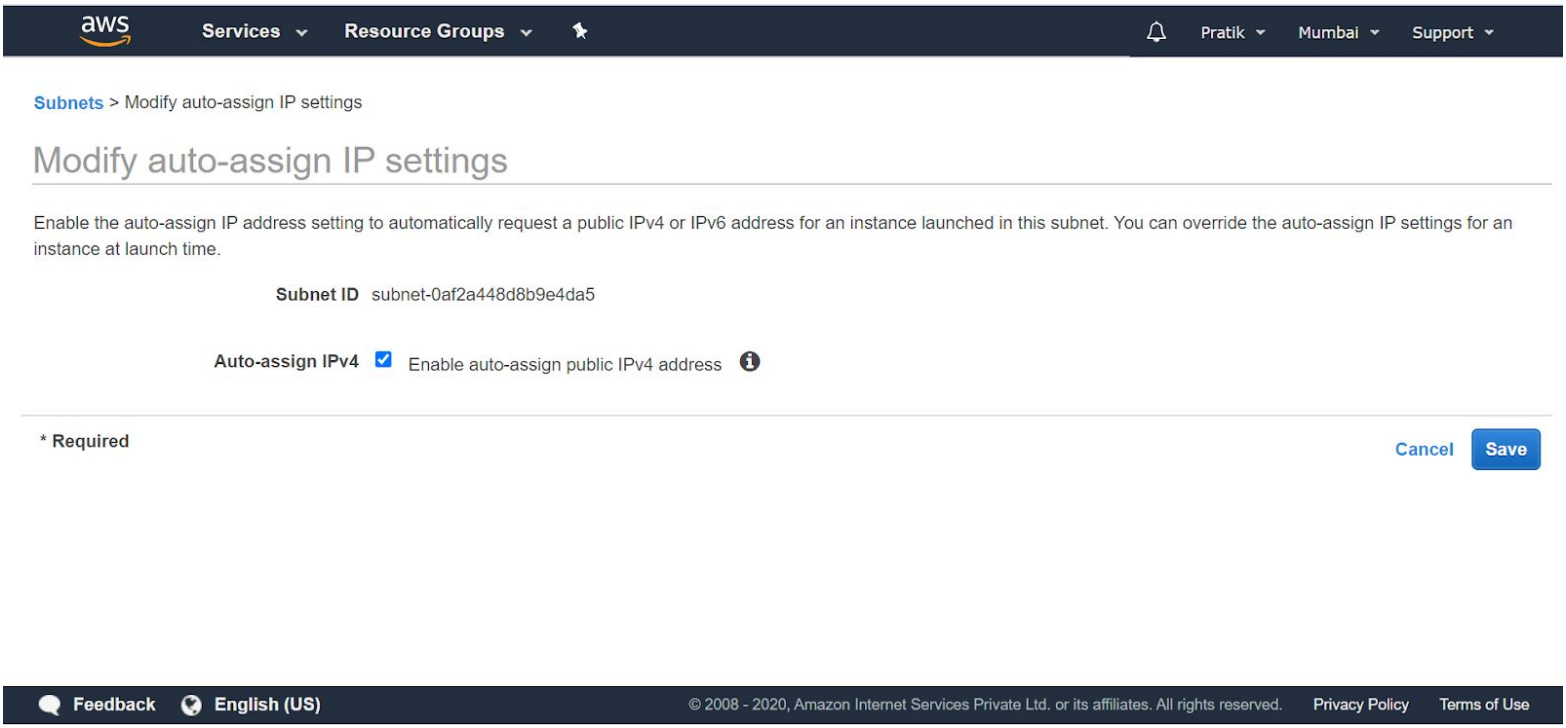
```
  Name = "pratik_vpc"
 }
}
```

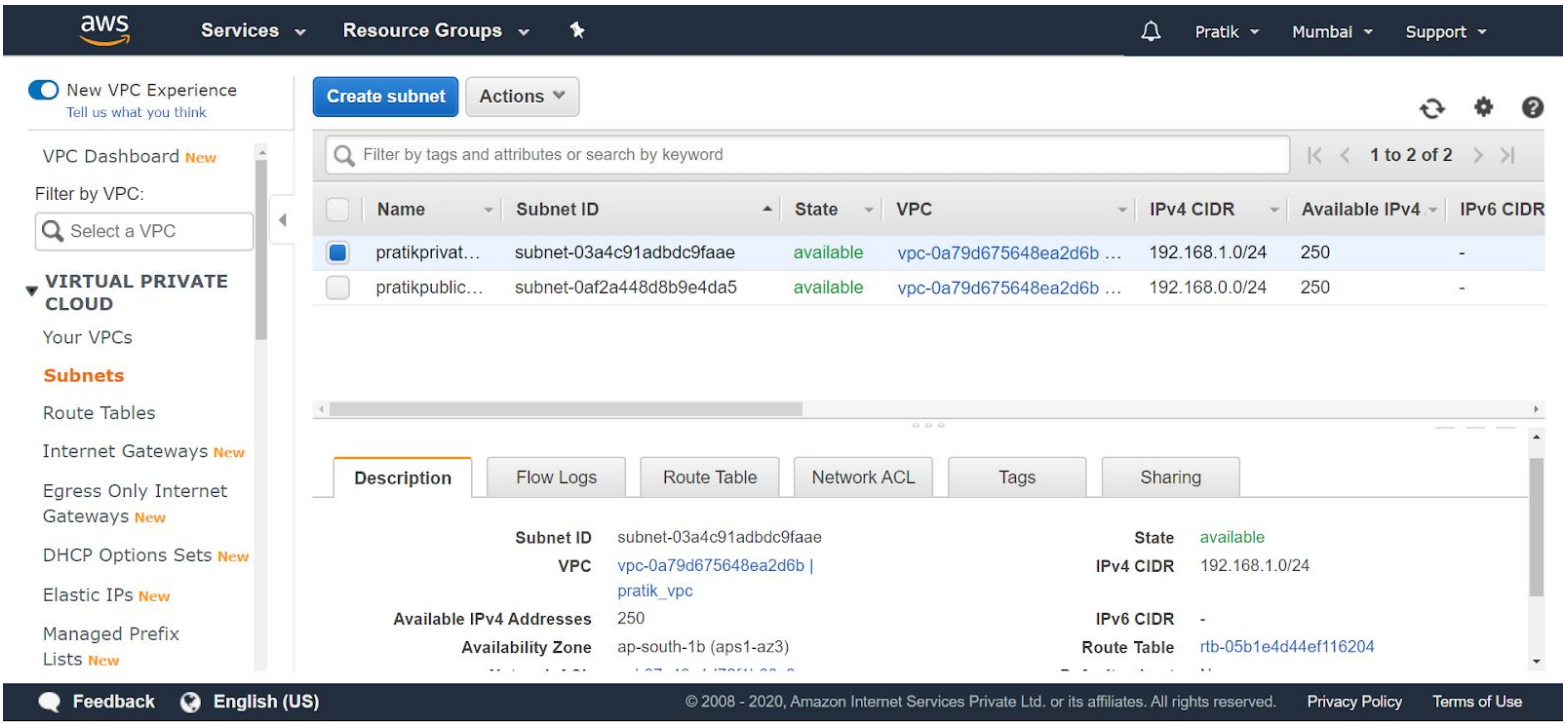


2. creating two subnet 1 and has auto-launch ip

```
resource "aws_subnet" "public" {
 vpc_id     = "${aws_vpc.myvpc.id}"
 cidr_block = "192.168.0.0/24"
 availability_zone = "ap-south-1a"

 tags = {
  Name = "pratikpublicsubnet"
 }
}
resource "aws_subnet" "private" {
 vpc_id     = "${aws_vpc.myvpc.id}"
 cidr_block = "192.168.1.0/24"
 availability_zone = "ap-south-1b"

 tags = {
  Name = "pratikprivatesubnet"
 }
}
```

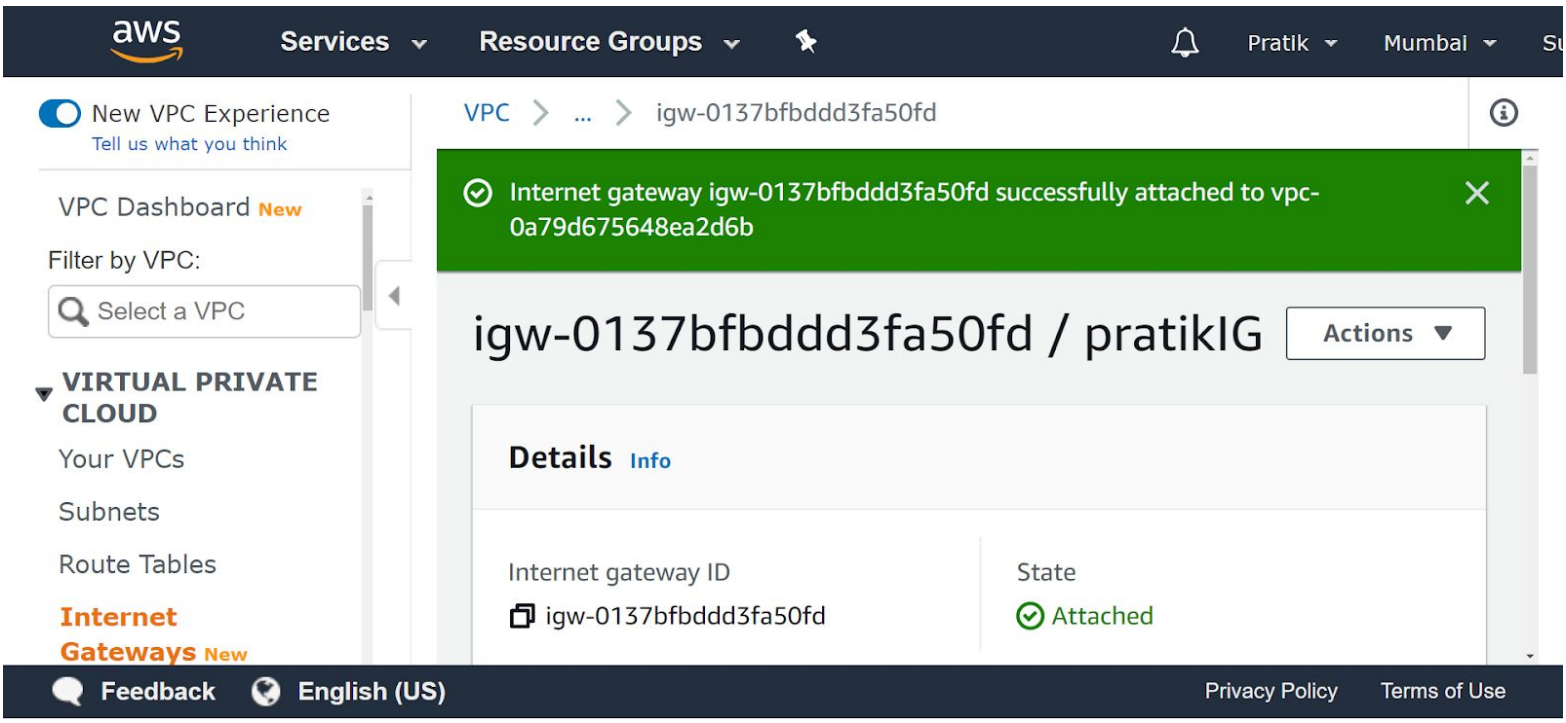


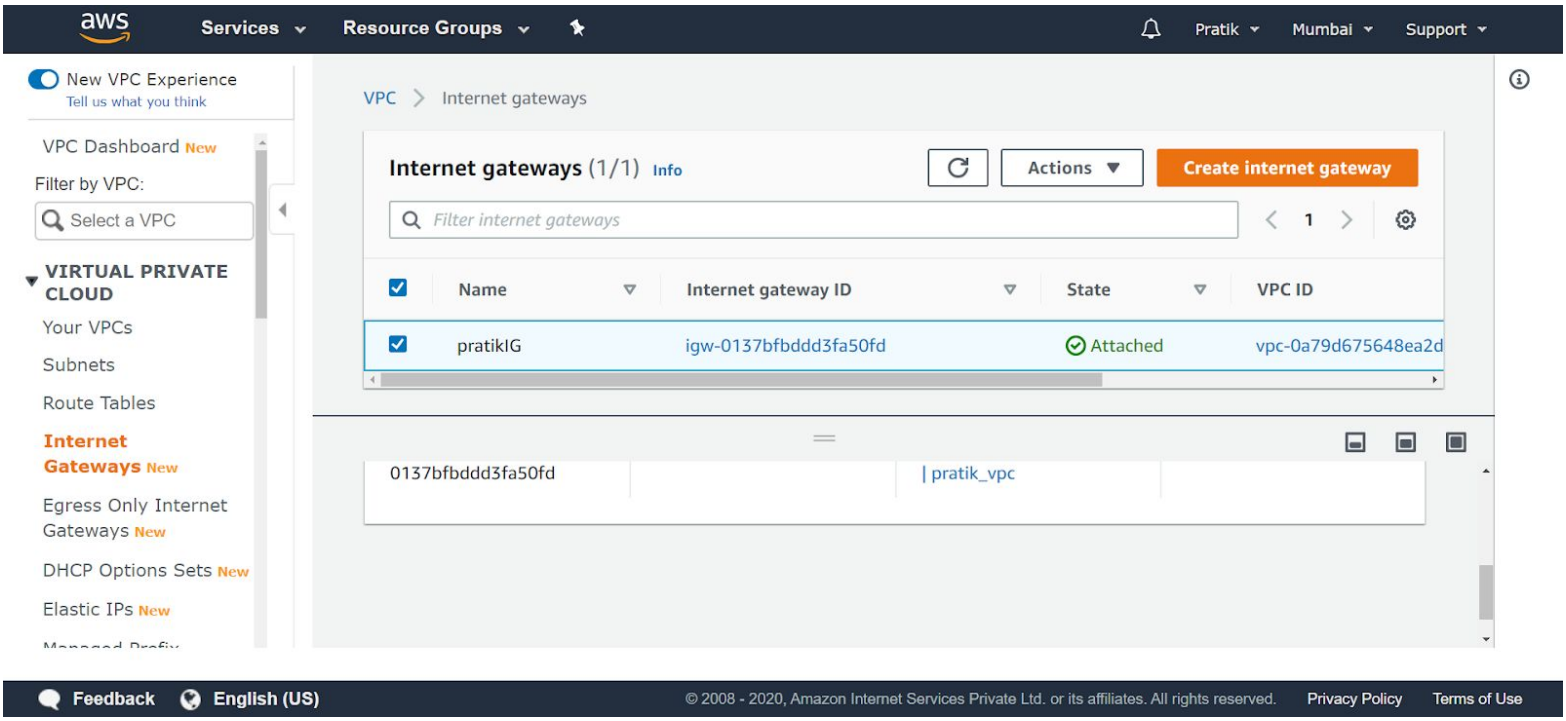




3. creating an internet gateway for a subnet id in south-1a

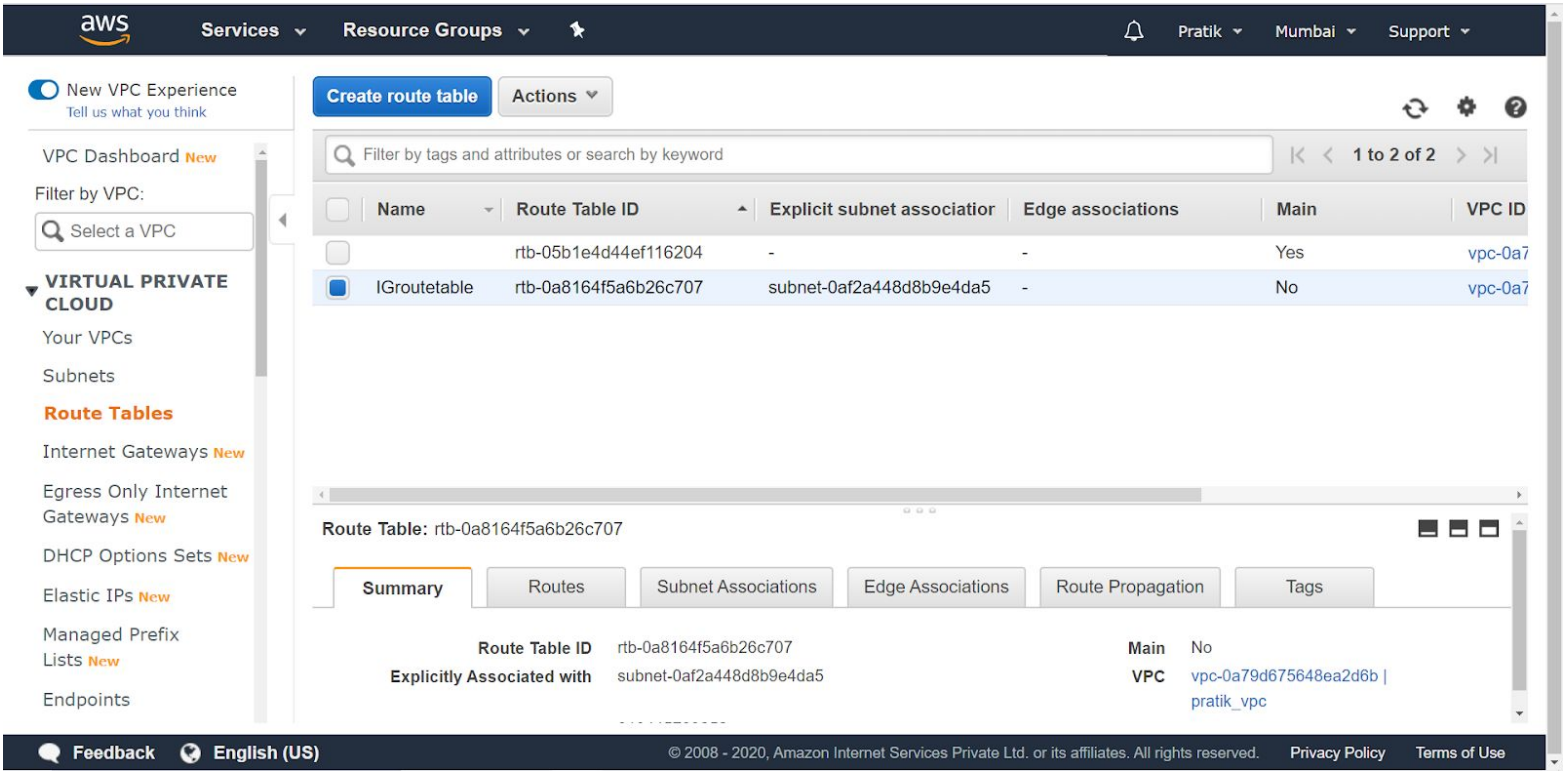
```
resource "aws_internet_gateway" "gw" {
  vpc_id = "${aws_vpc.myvpc.id}"

  tags = {
    Name = "pratikIG"
  }
}
```





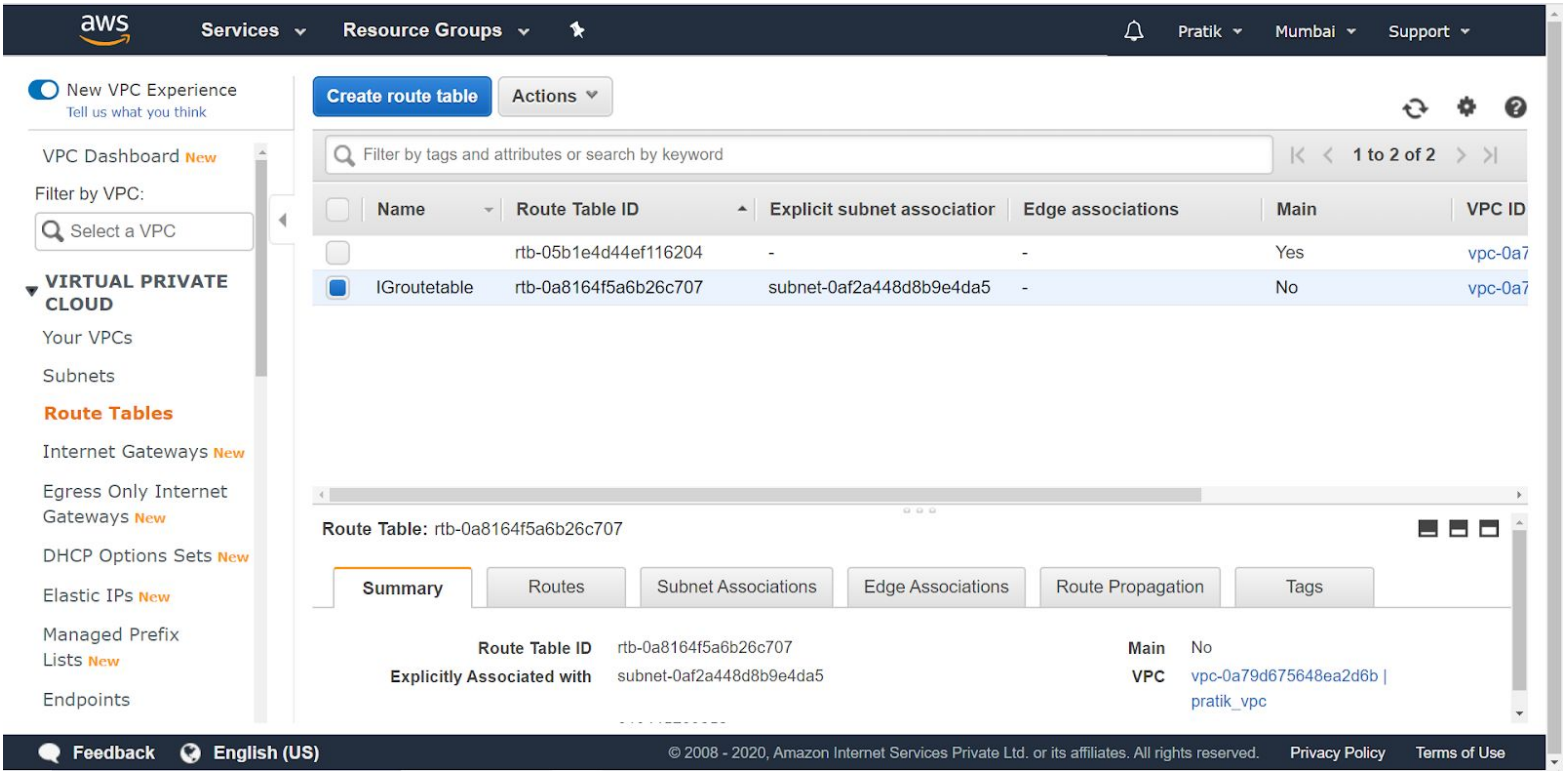
4. creating a route-table > associating route-table with the internet gateway

```
resource "aws_route_table" "forig" {
  vpc_id = "${aws_vpc.myvpc.id}"

  route {
    cidr_block = "0.0.0.0/0"
    gateway_id = "${aws_internet_gateway.gw.id}"
  }

  tags = {
    Name = "IGroutetable"
  }
}
```



5. Associating route table with subnet

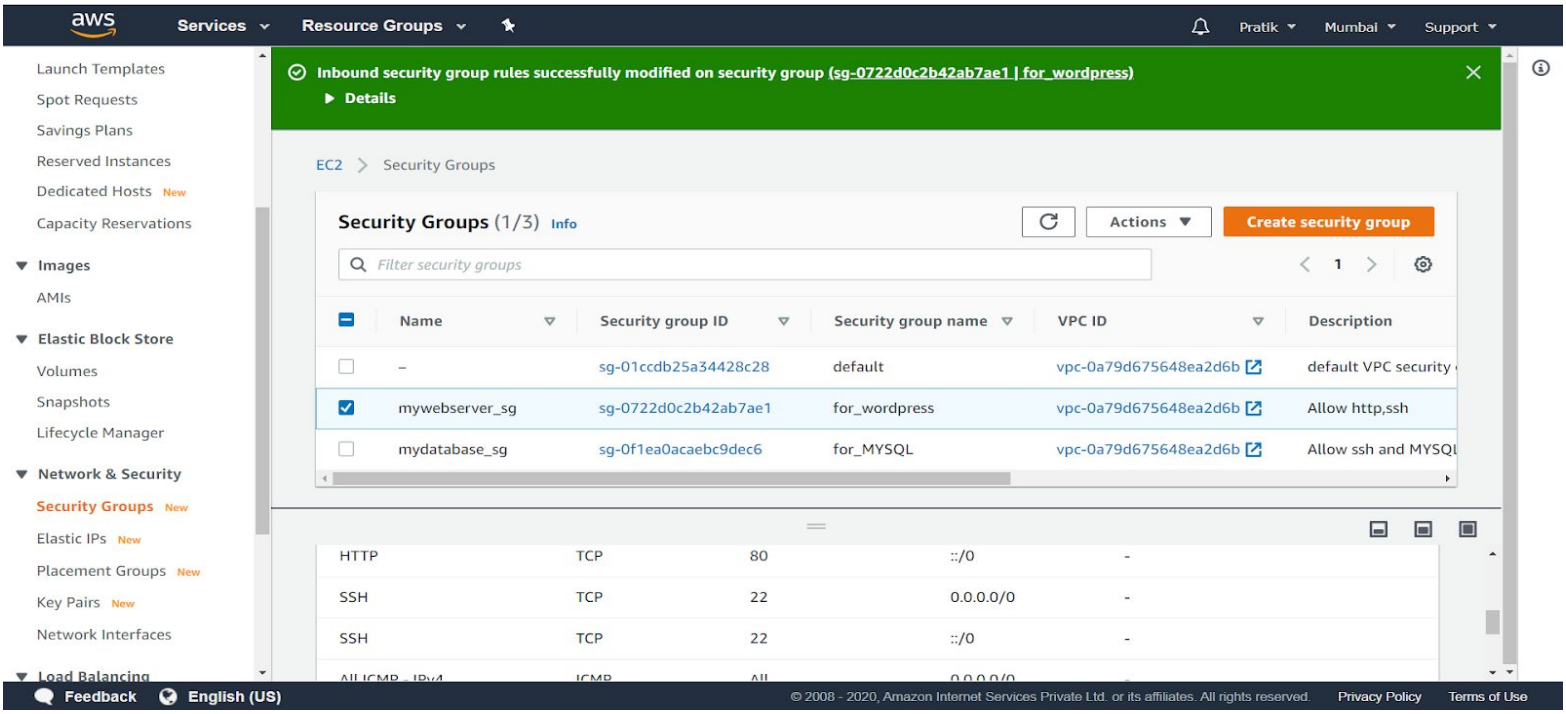
```
resource "aws_route_table_association" "asstopublic" {
  subnet_id      = aws_subnet.public.id
  route_table_id = aws_route_table.forig.id
}
```

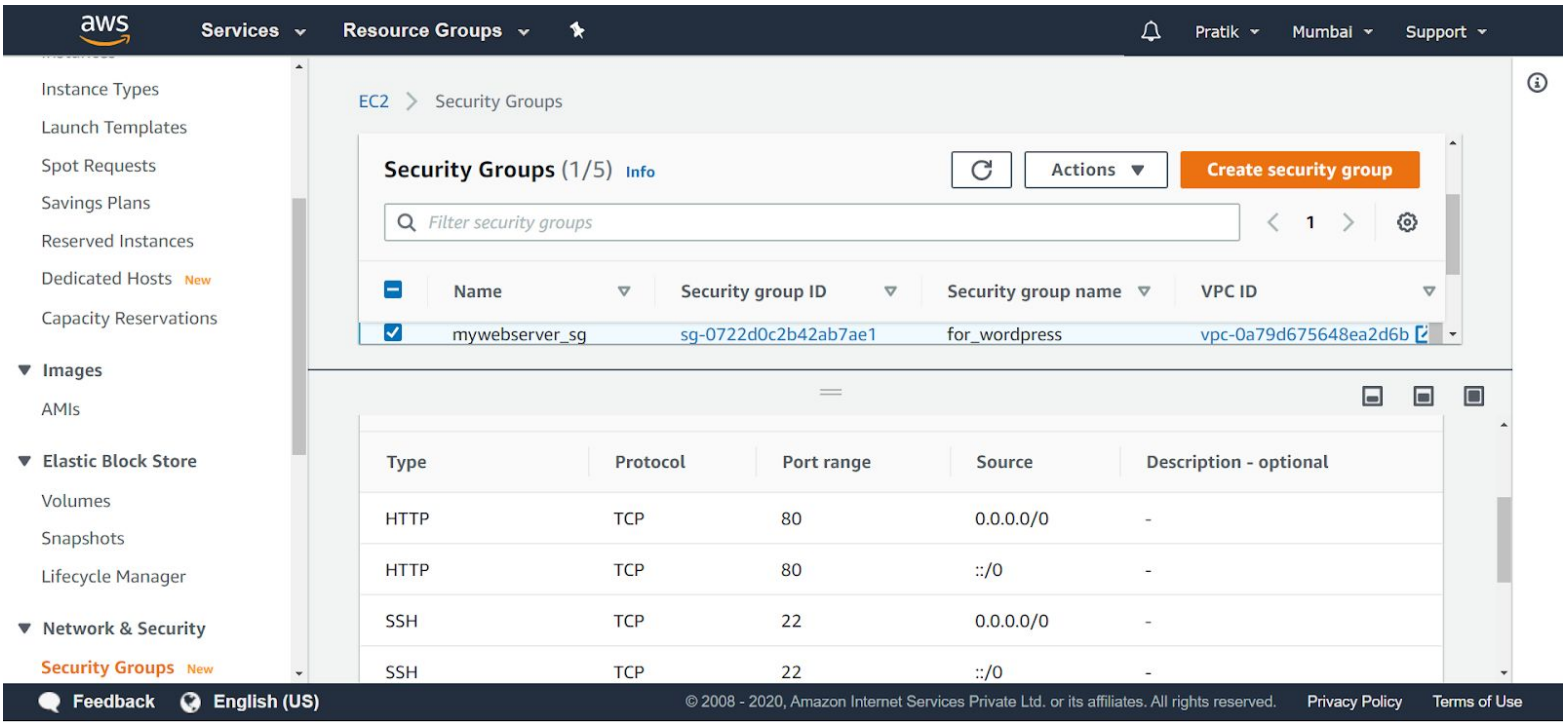


6.Creating the security group with ingress(ssh,http and icmpv4 protocol) - mywebserver_sg

```
resource "aws_security_group" "webserver" {
  name        = "for_wordpress"
  description = "Allow http,ssh"
```

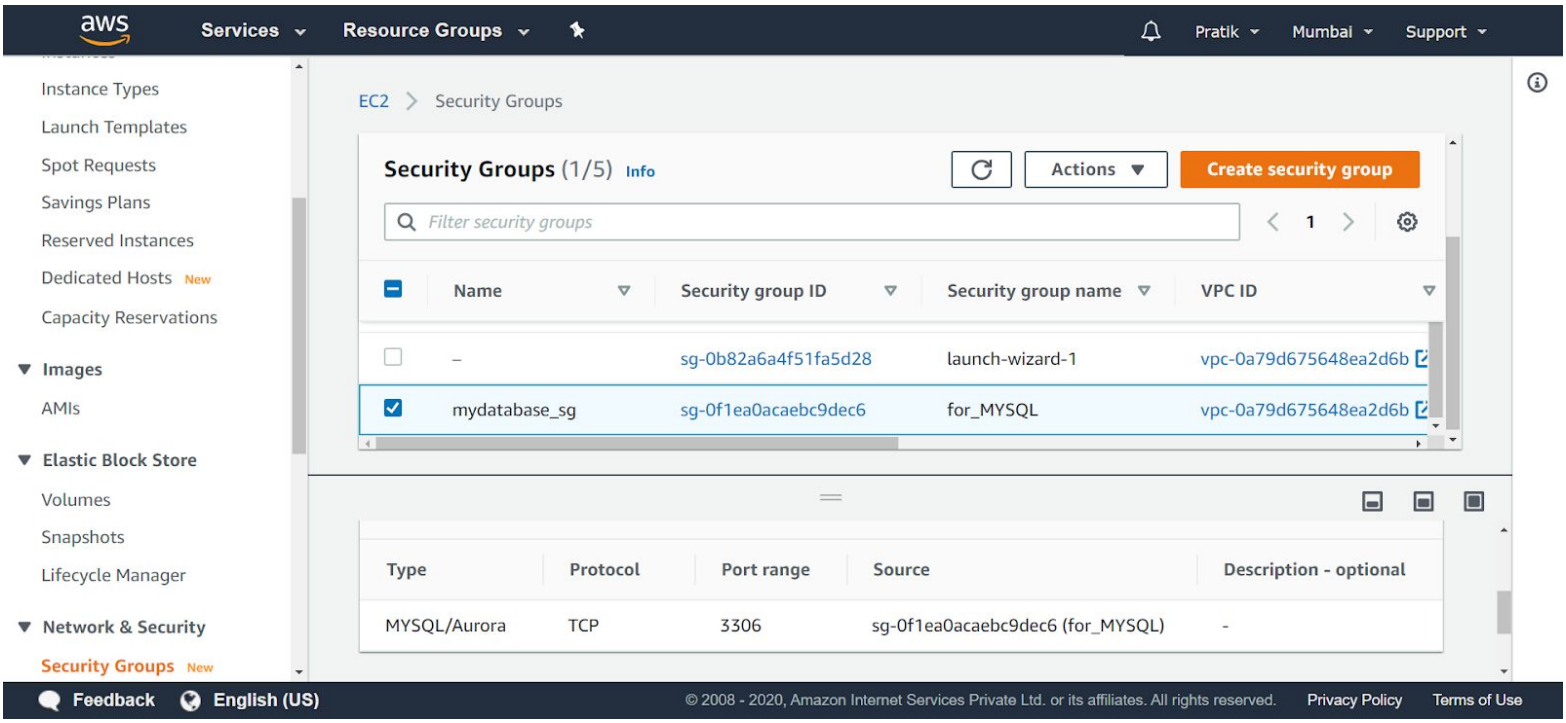
```
 vpc_id      = "${aws_vpc.myvpc.id}"

 ingress {
  description = "HTTP"
  from_port   = 80
  to_port     = 80
  protocol    = "tcp"
  cidr_blocks = ["0.0.0.0/0"]
 }
ingress {
  description = "SSH"
  from_port   = 22
  to_port     = 22
  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"]
 }

 tags = {
  Name = "mywebserver_sg"
 }
}
```





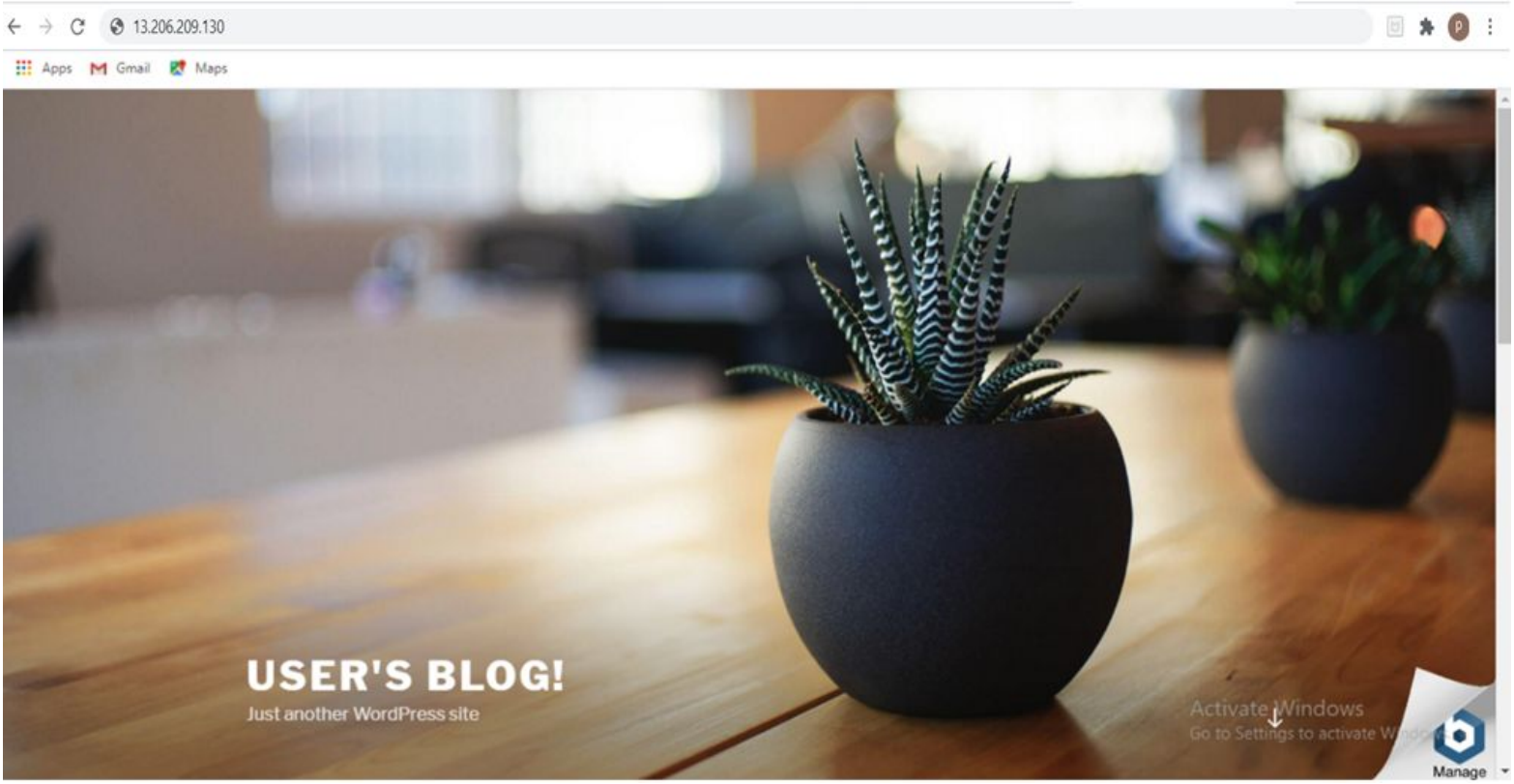
7. Creating a subnet group with MYSQL protocol and value of security_id(myweb) - mydatabase_sg

```
resource "aws_security_group" "database" {
  name        = "for_MYSQL"
  description = "Allow ssh and MYSQL"
  vpc_id      = "${aws_vpc.myvpc.id}"

  ingress {
    description = "MYSQL"
    security_groups = [aws_security_group.webserver.id]
    from_port   = 3306
    to_port     = 3306
    protocol    = "tcp"

  }
  egress {
    from_port   = 0
    to_port     = 0
    protocol    = "-1"
    cidr_blocks = ["0.0.0.0/0"]
  }

  tags = {
    Name = "mydatabase_sg"
  }
}
```



8. Launching the instance

```
resource "aws_instance" "wordpress" {
  ami           = "ami-00b494a3f139ba61f"
  instance_type = "t2.micro"
  associate_public_ip_address = true
  subnet_id = aws_subnet.public.id
  vpc_security_group_ids = [aws_security_group.webserver.id]
  key_name = "mykey111"


  tags = {
    Name = "wordpress"
  }

}
resource "aws_instance" "mysql" {
  ami           = "ami-0019ac6129392a0f2"
  instance_type = "t2.micro"
  subnet_id = aws_subnet.private.id
  vpc_security_group_ids = [aws_security_group.database.id]
  key_name = "mykey111"


 tags = {
    Name = "mysql"
  }

}
```




```
Warning: Interpolation-only expressions are deprecated

  on task.tf line 15, in resource "aws_subnet" "public":
  15:   vpc_id     = "${aws_vpc.myvpc.id}"

Terraform 0.11 and earlier required all non-constant expressions to be
provided via interpolation syntax, but this pattern is now deprecated. To
silence this warning, remove the "${ sequence from the start and the }"
sequence from the end of this expression, leaving just the inner expression.

Template interpolation syntax is still used to construct strings from
expressions when the template includes multiple interpolation sequences or a
mixture of literal strings and interpolations. This deprecation applies only
to templates that consist entirely of a single interpolation sequence.

(and 6 more similar warnings elsewhere)


Destroy complete! Resources: 10 destroyed.
```