Project 1 - Deploying a Multi-Tier Website Using AWS EC2

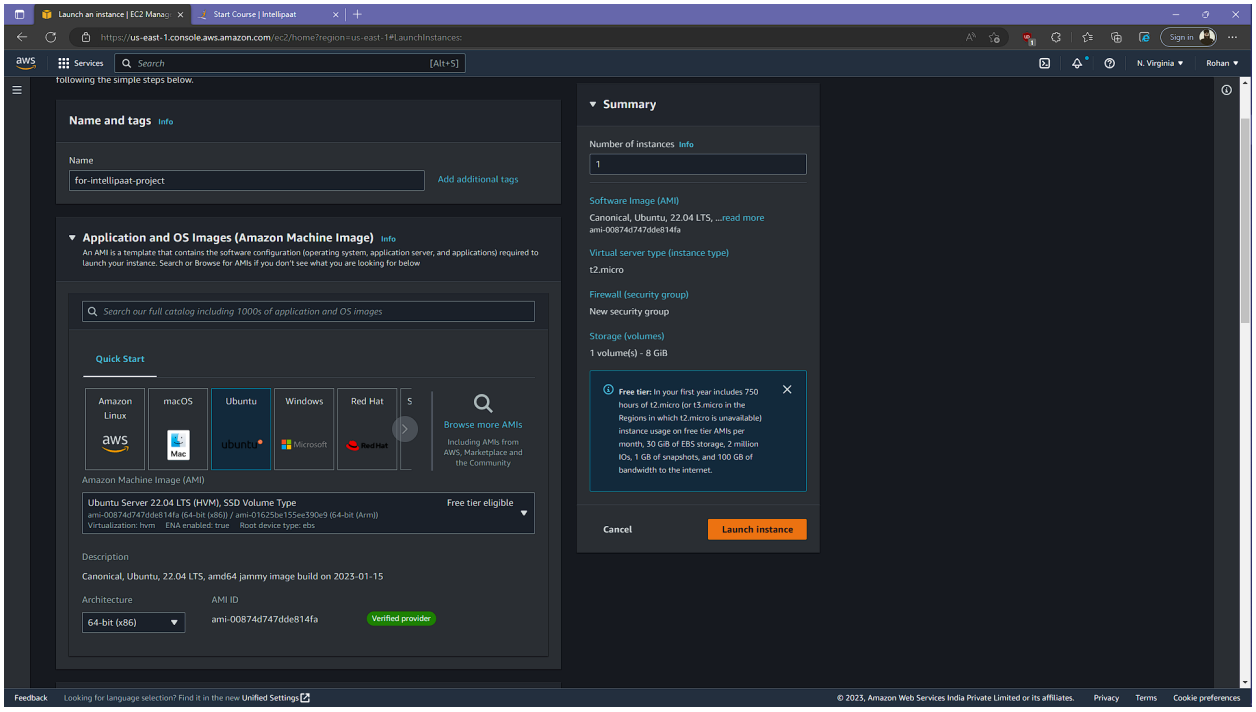
Topic: Deploy a Multi-tier website using EC2

Description: Amazon Elastic Compute Cloud (Amazon EC2) provides scalable computing capacity in the Amazon Web Services (AWS) cloud. Using Amazon EC2 eliminates your need to invest in hardware up front, so you can develop and deploy applications faster. You can use Amazon EC2 to launch as many or as few virtual servers as you need, configure security and networking, and manage storage. Amazon EC2 enables you to scale up or down to handle changes in requirements or spikes in popularity, reducing your need to forecast traffic.

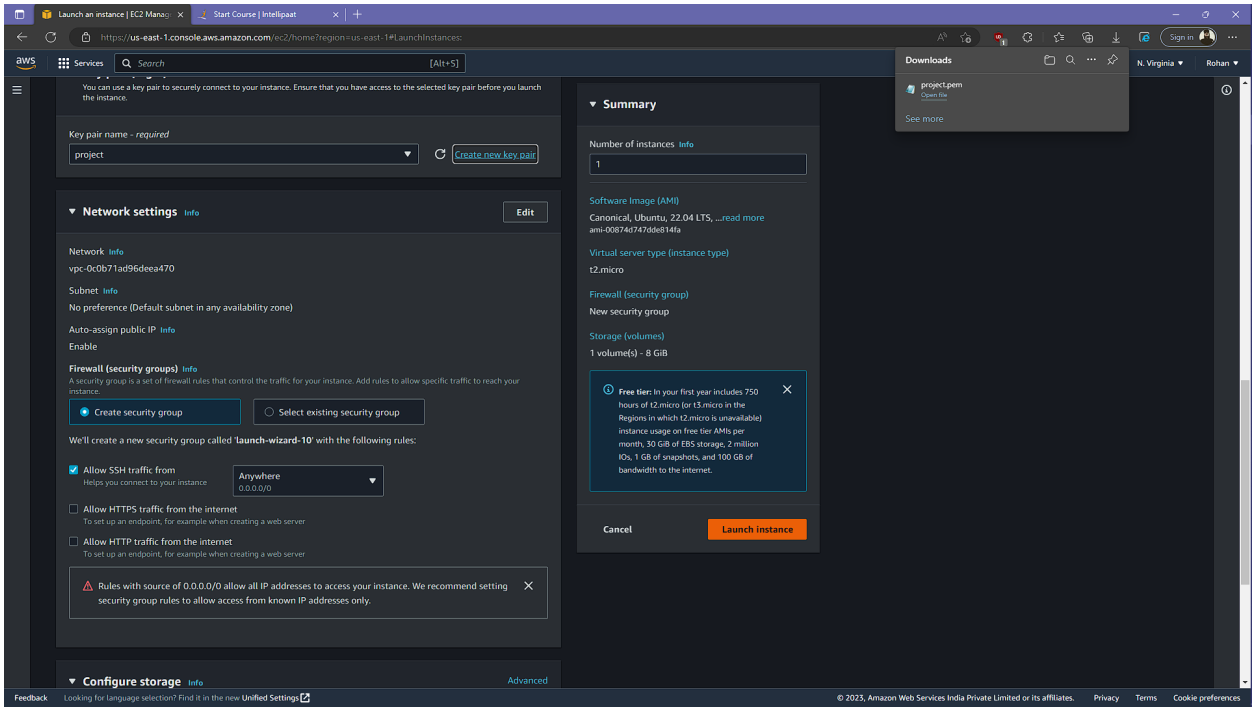
Problem Statement: Company ABC wants to move their product to AWS.They have the following things setup right now:

1. MySQL DB
2. Website (PHP) The company wants high availability on this product, therefore wants autoscaling to be enabled on this website.

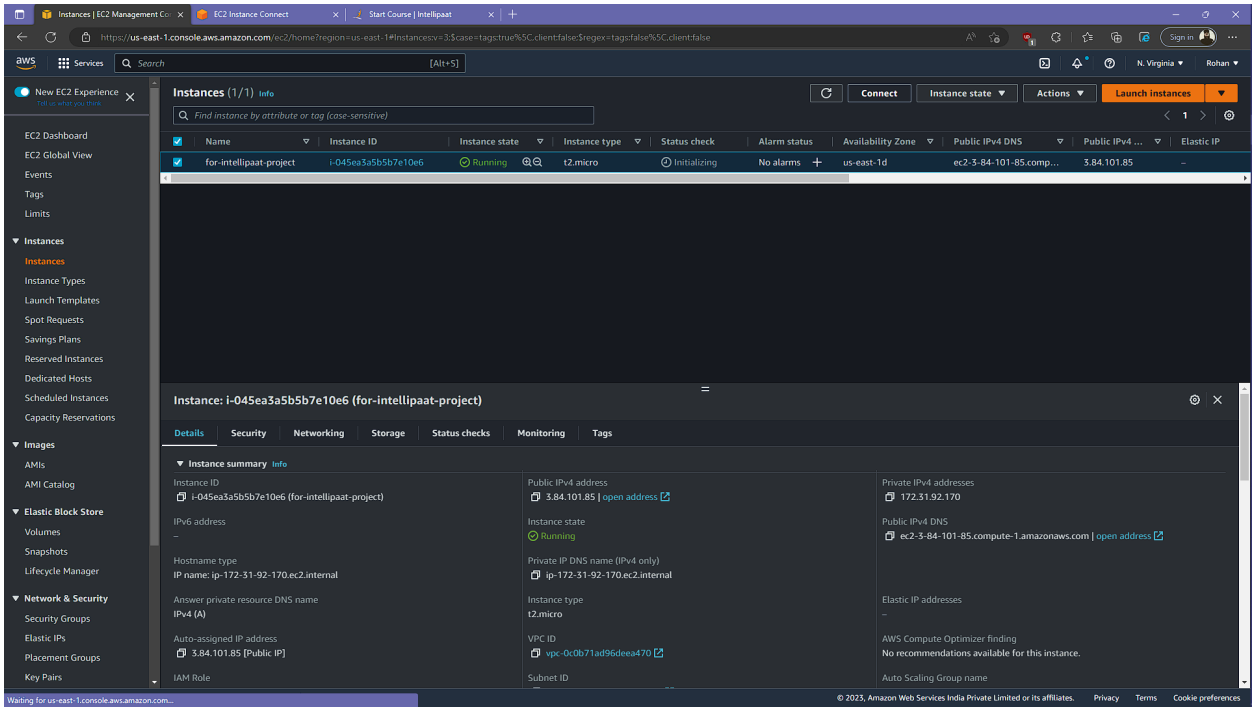
Lets's create a EC2 instance first with ubuntu AMI.



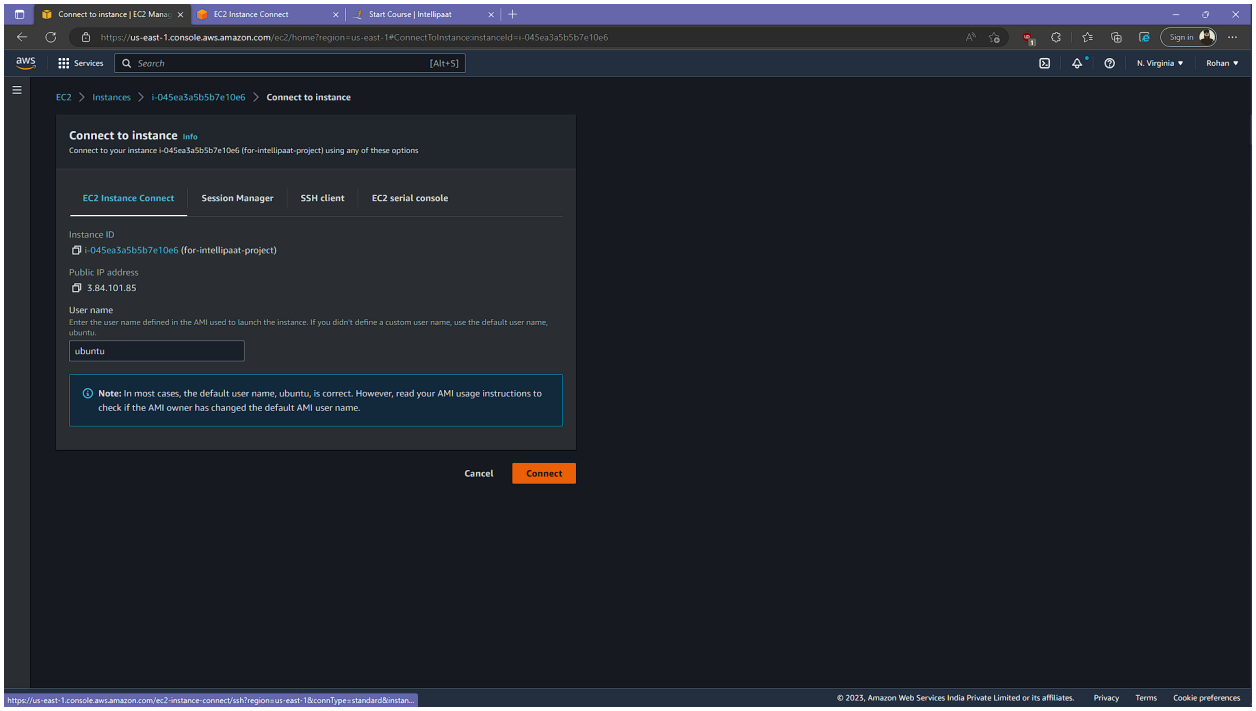
Create a keypair and assign to it. Allow only ssh for now from anywhere.



Instance has been created.

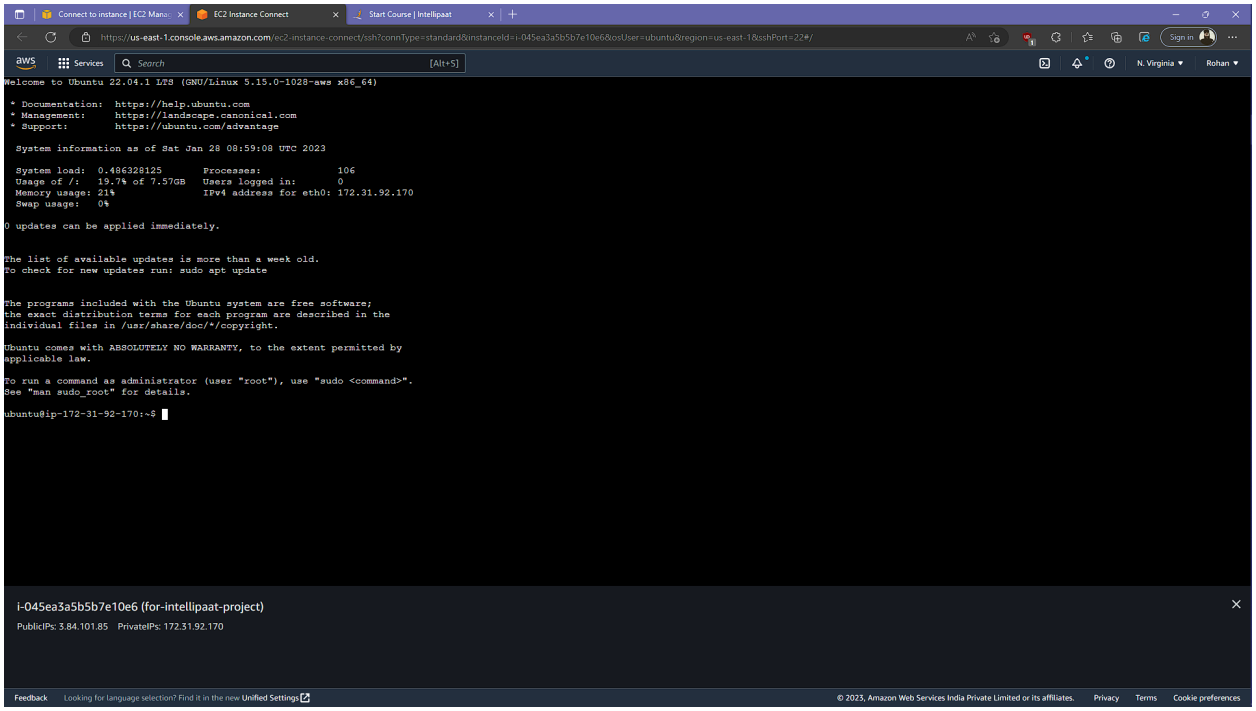


Let’s SSH to it.

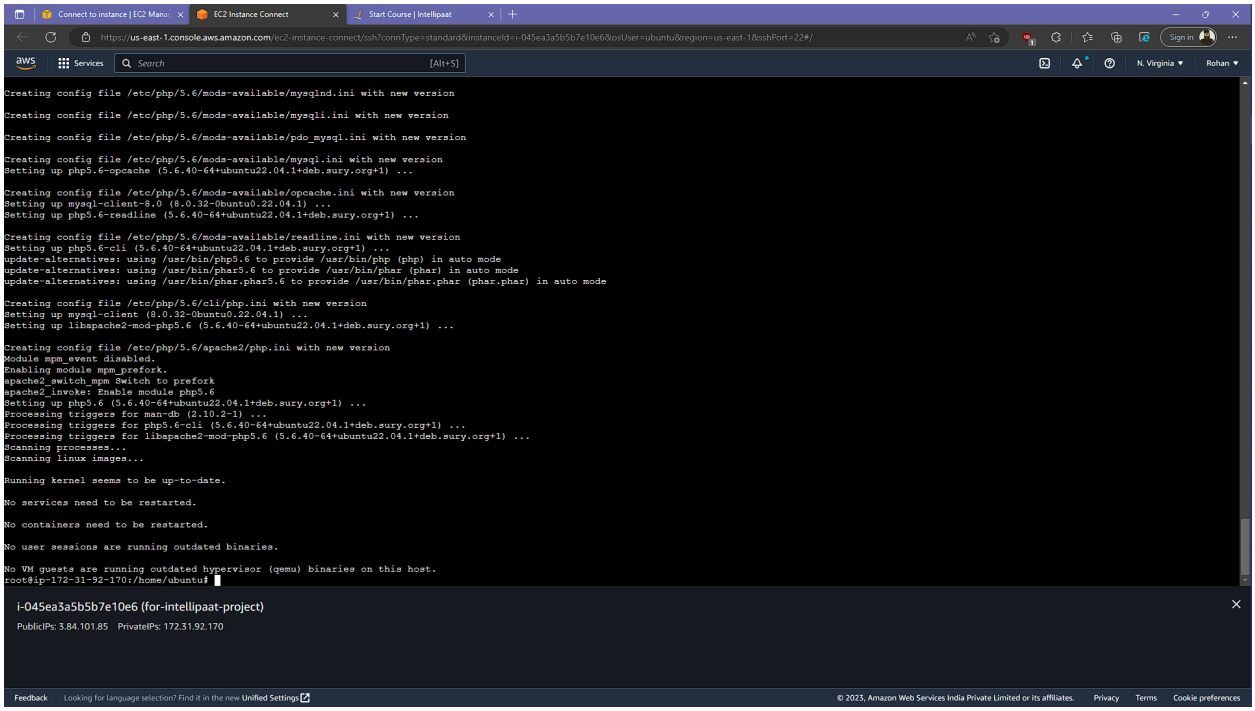


Use following commands once connecting to instance:

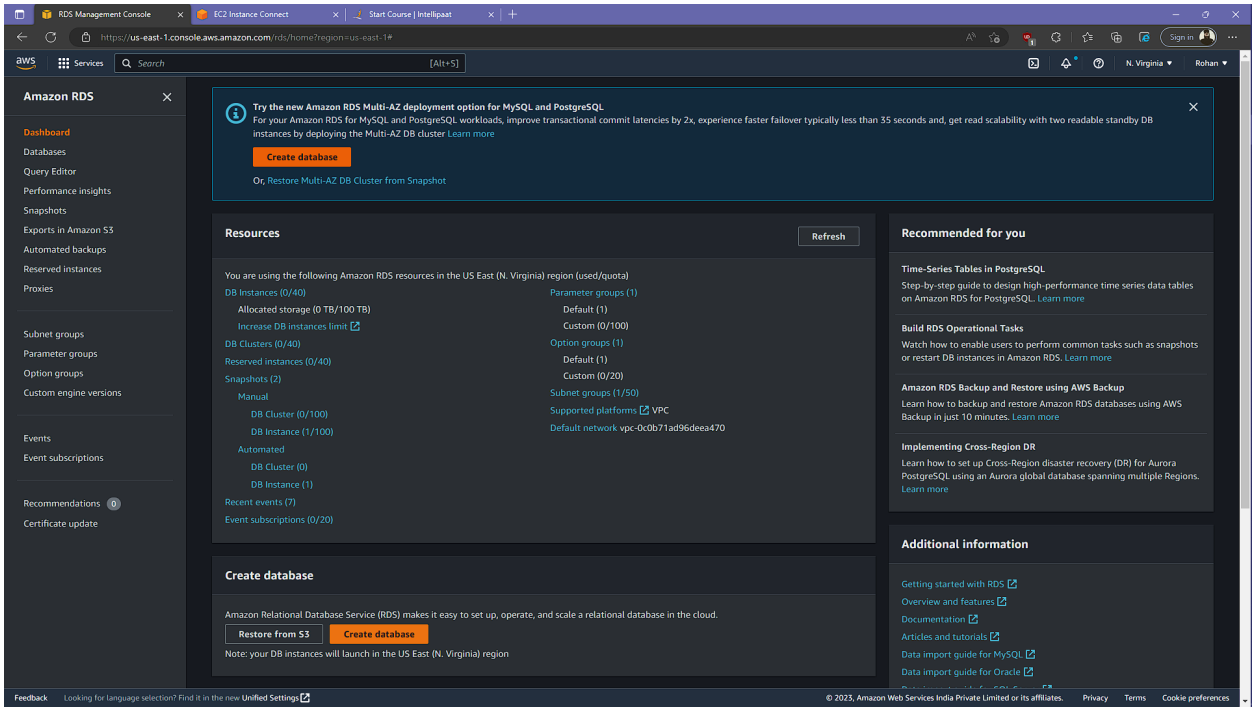
Sudo su
Sudo apt-get update
Apt-get install apache2
Then we install mysql client:
sudo add-apt-repository -y ppa:ondrej/php
sudo apt install php5.6 mysql-client php5.6-mysqli



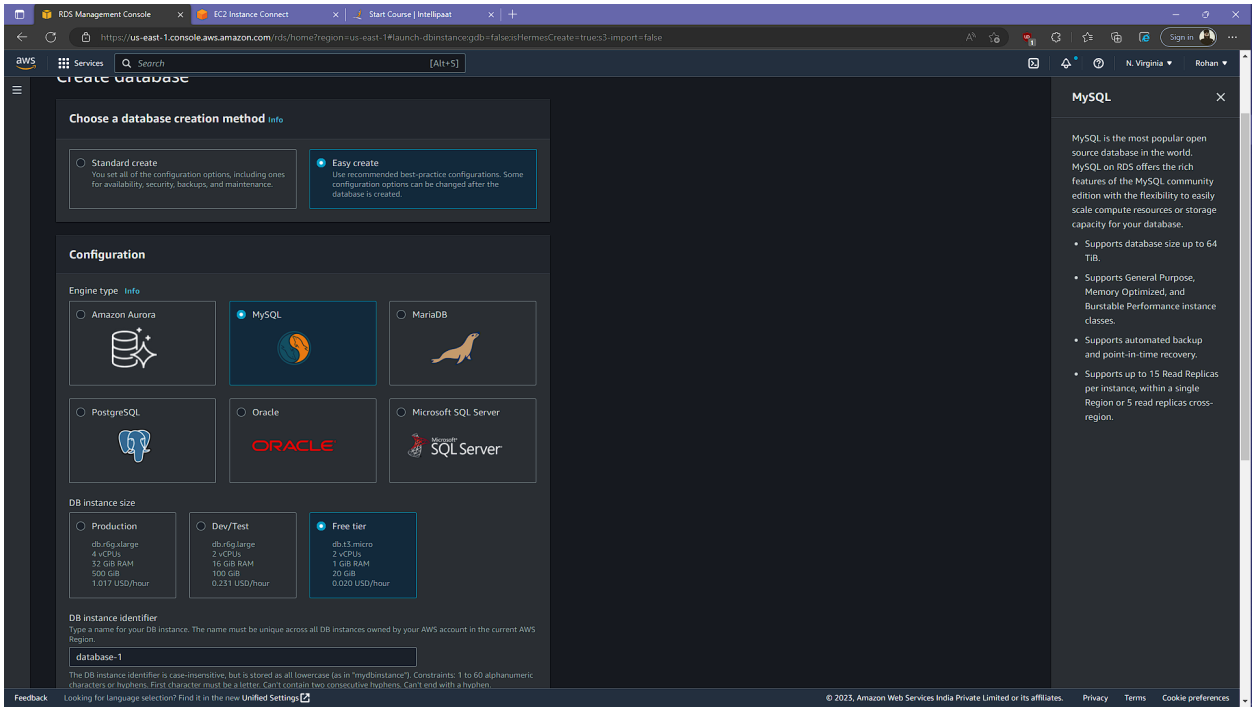
Done



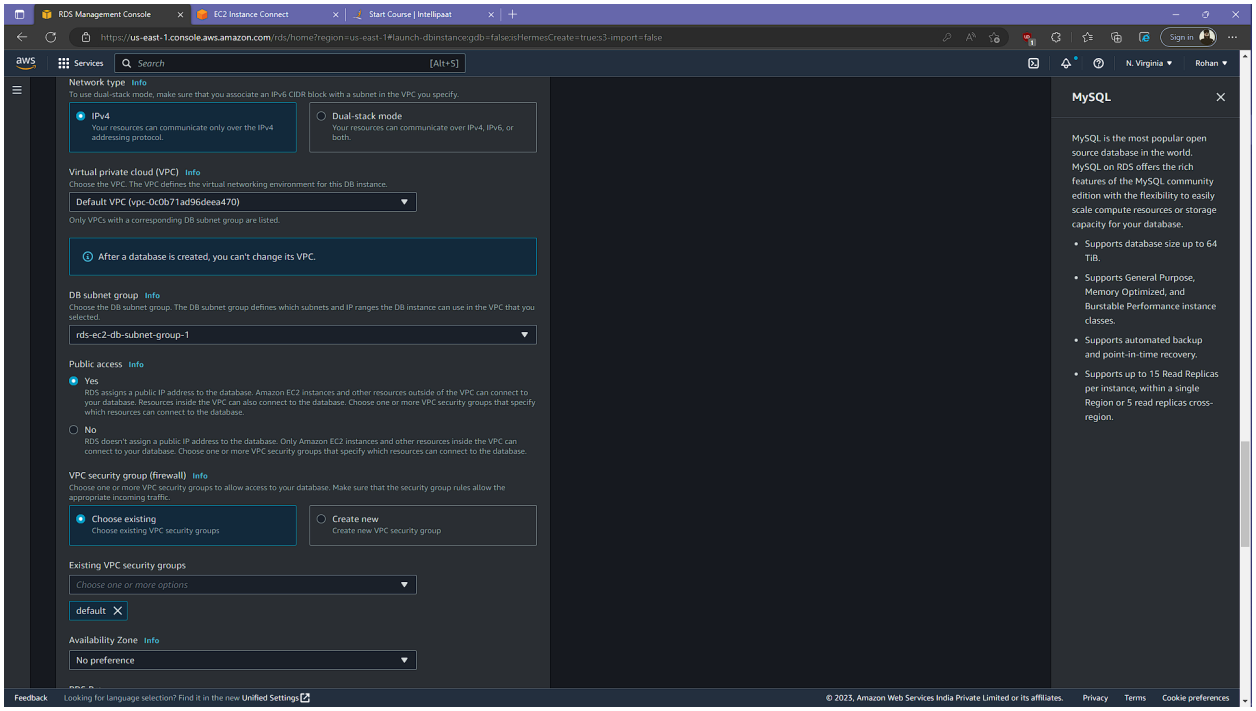
Now let's create a DB.



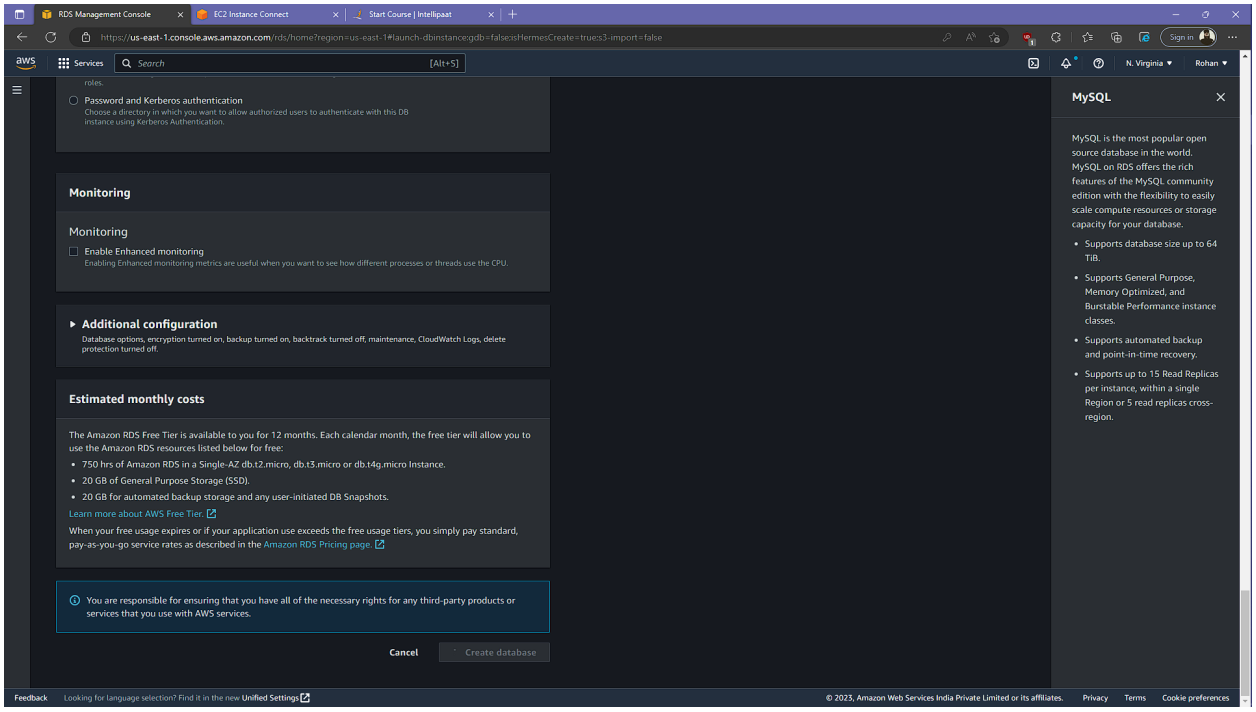
Choose MySQL



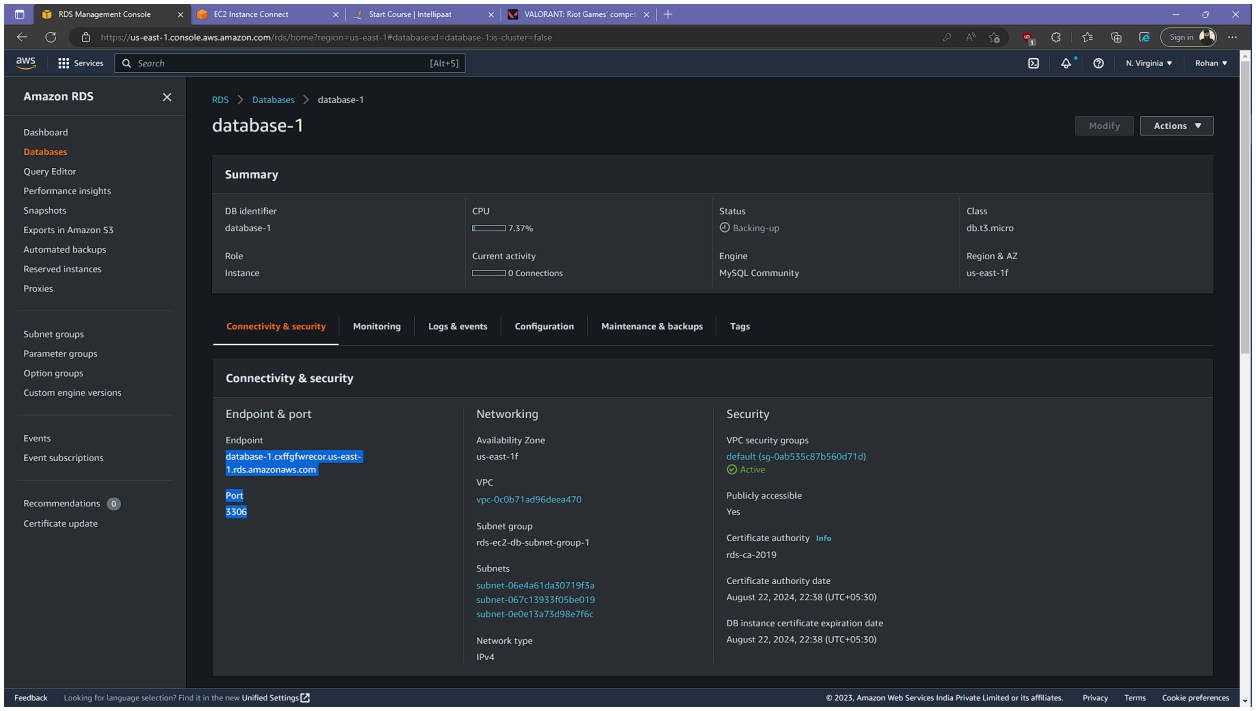
Let the public accessibility be YES.



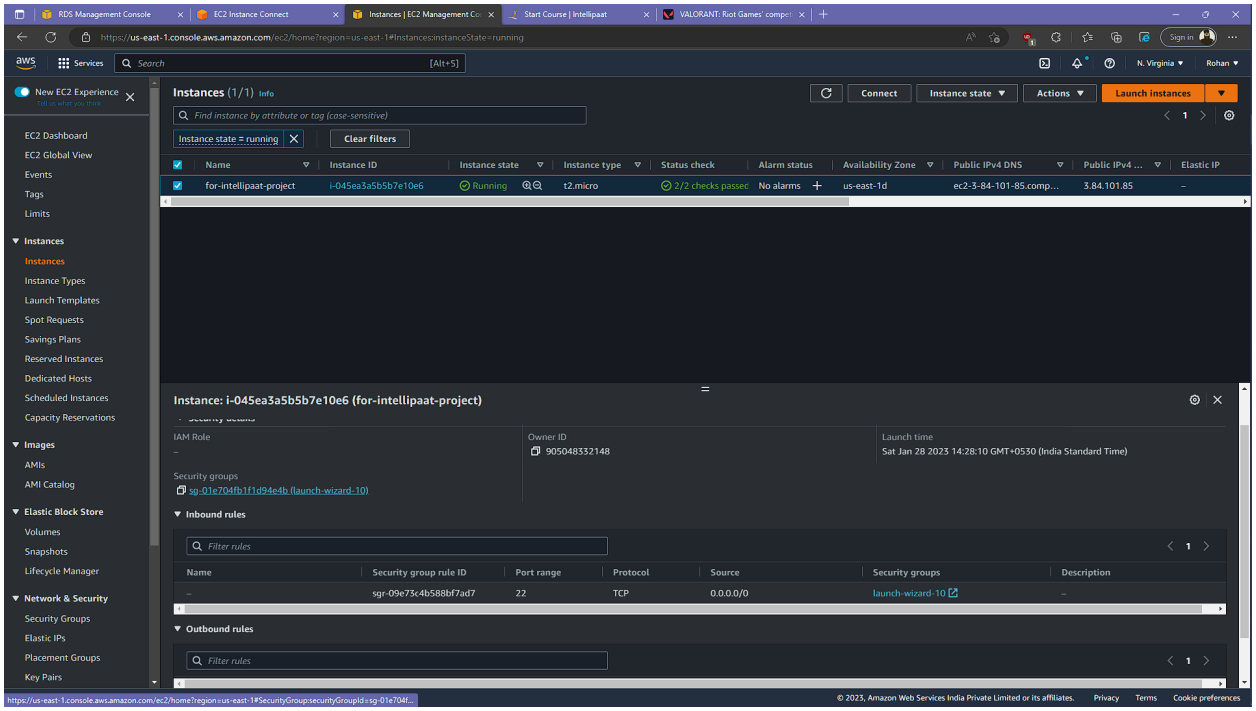
And create Database.

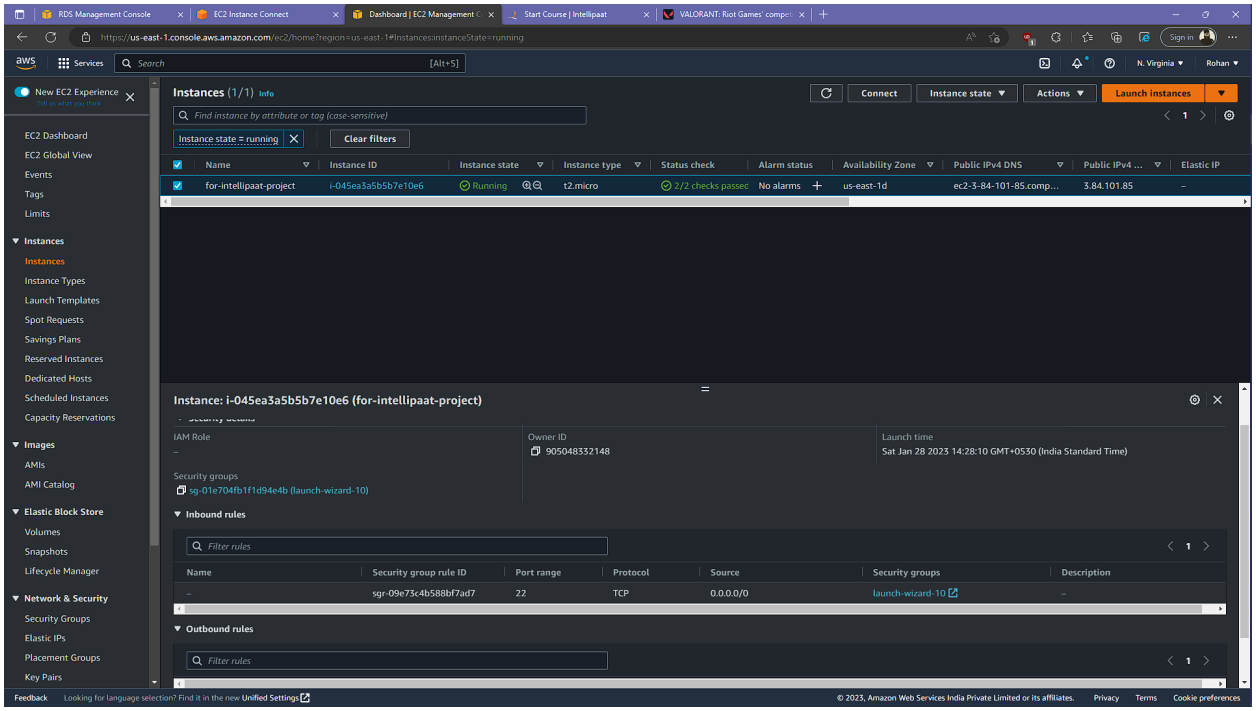


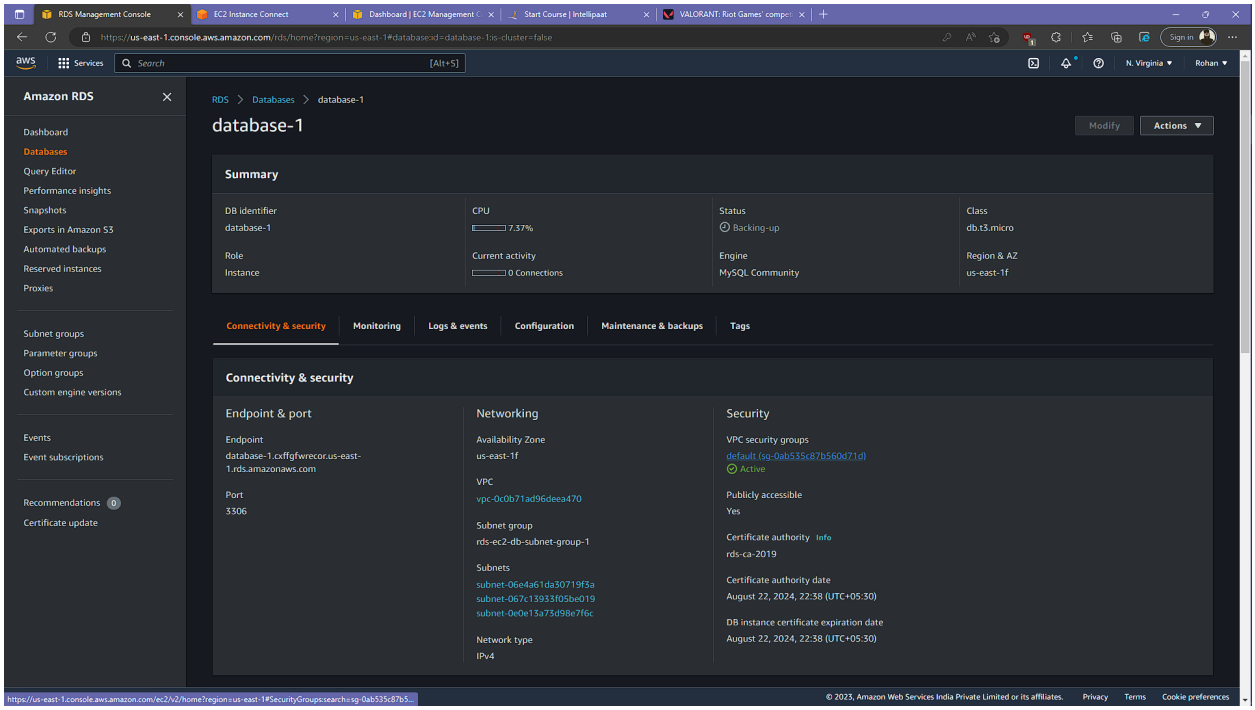
Endpoint and port has been generated.

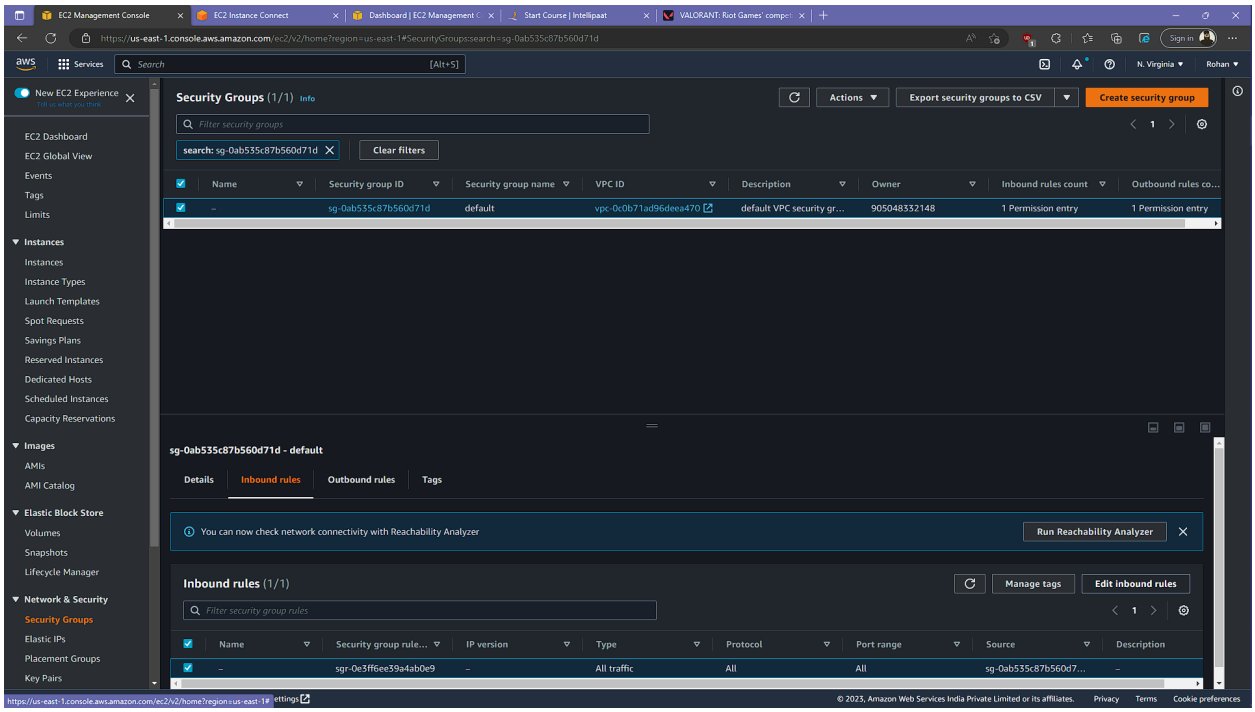


Let’s change security group rules of RDS.

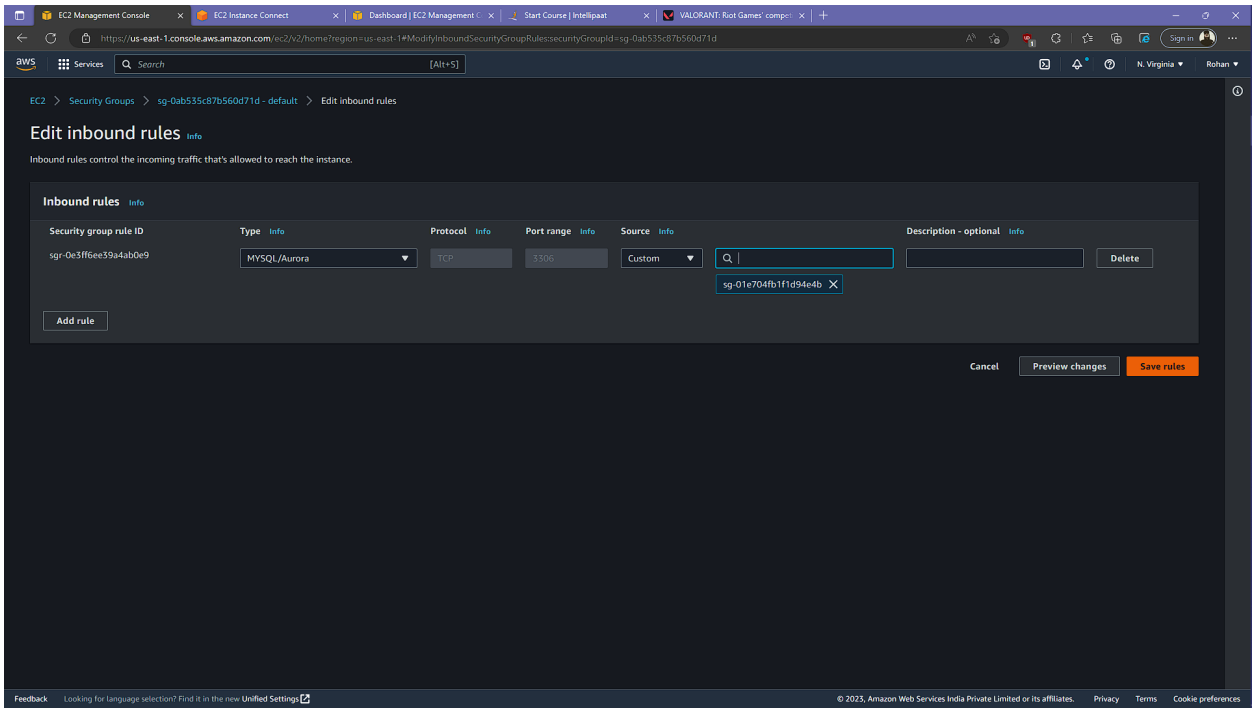








Edit inbound rules of rds and choose source as Ec2 instance security group that we just created.



Back to ssh.Let's connect Our RDS to Ec2.

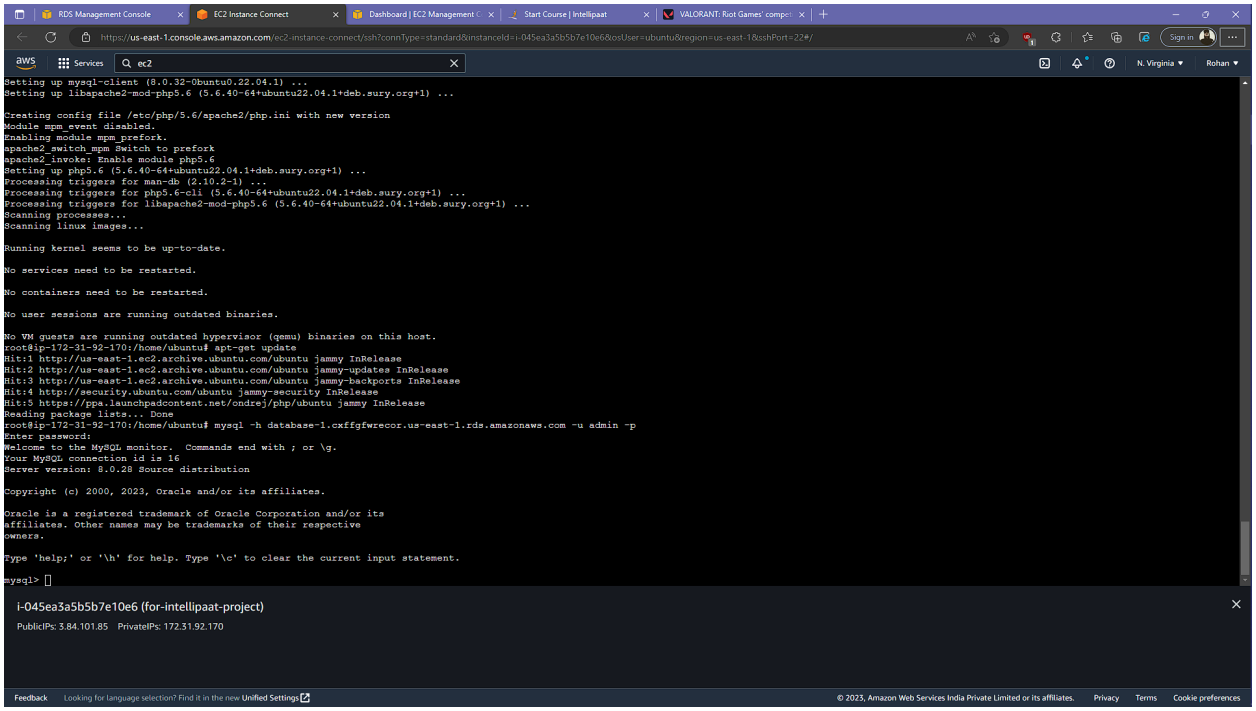
Use following commands:

mysql -h database-1.cxffgfwrecor.us-east-1.rds.amazonaws.com -u admin -p

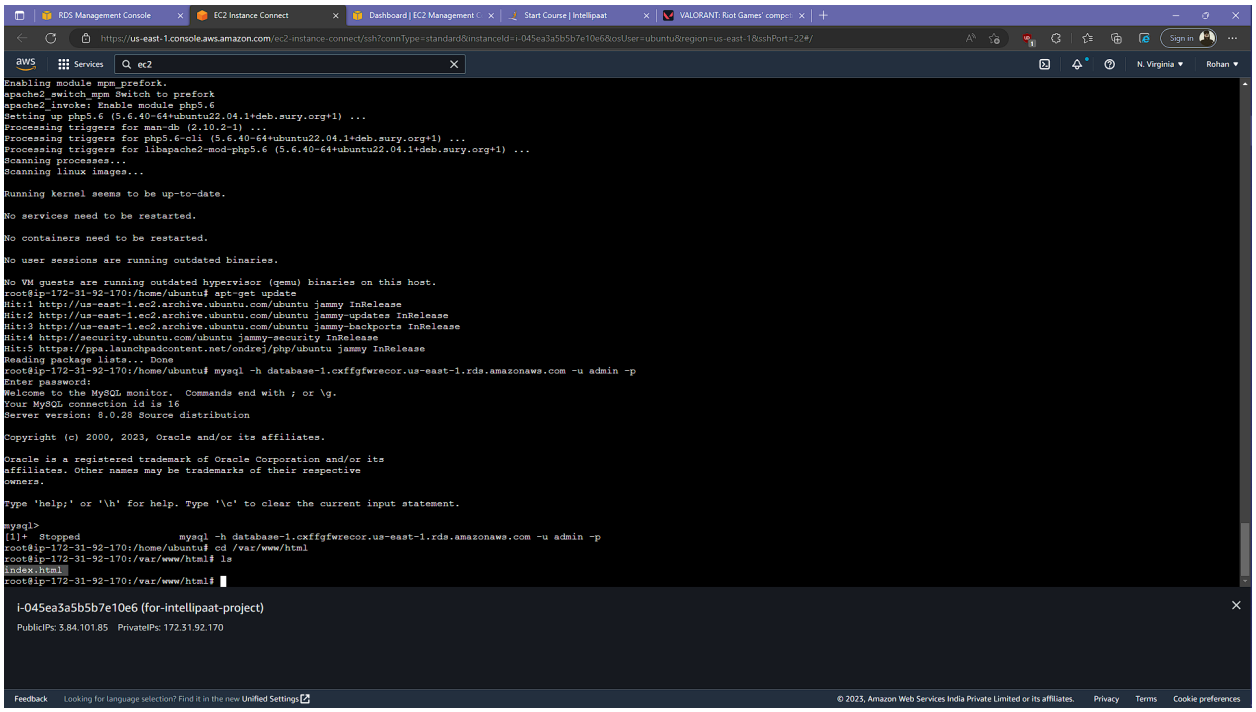
Then enter password for it.

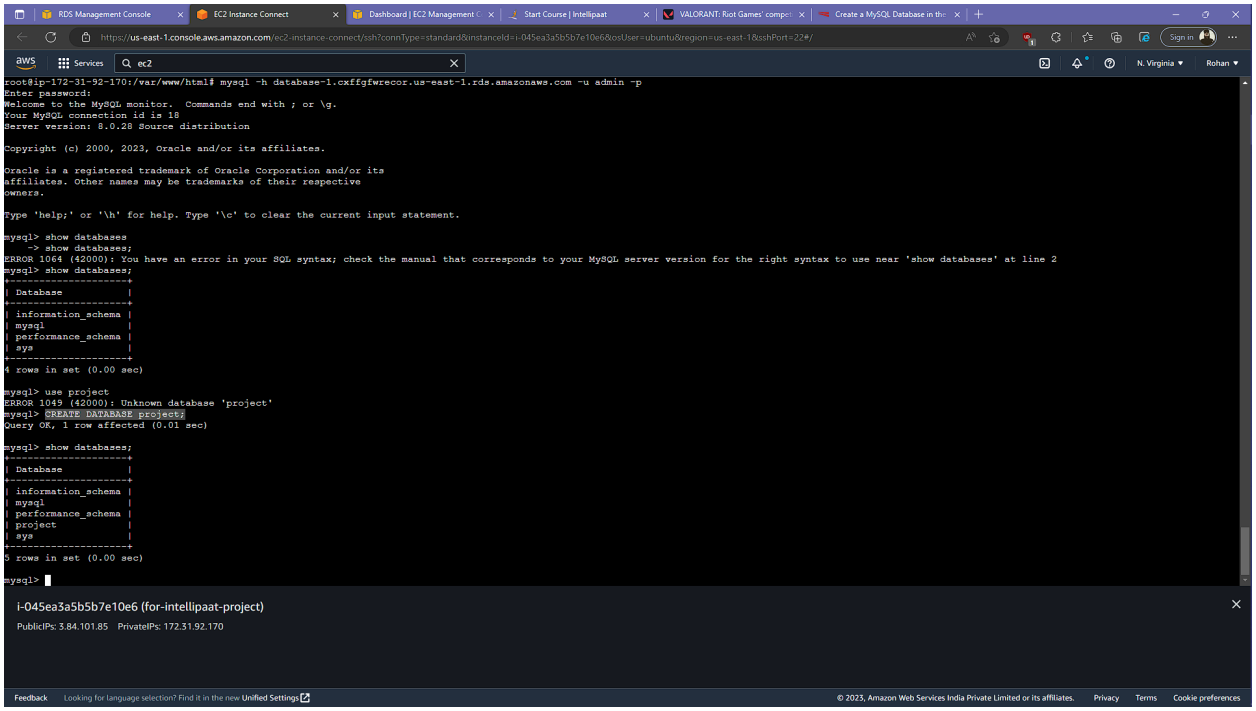
Create a database named project.

CREATE DATABASE <database_name>;



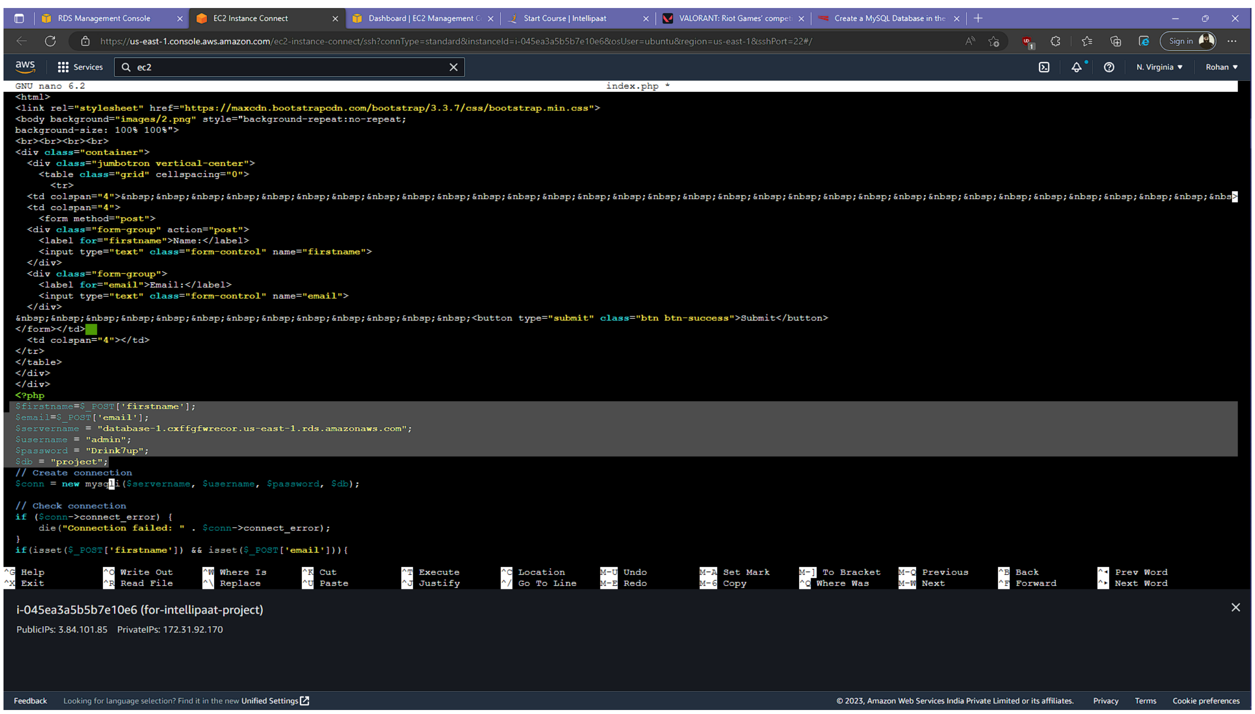
Now cd /var/www/html
Remove index.html using rm index.html

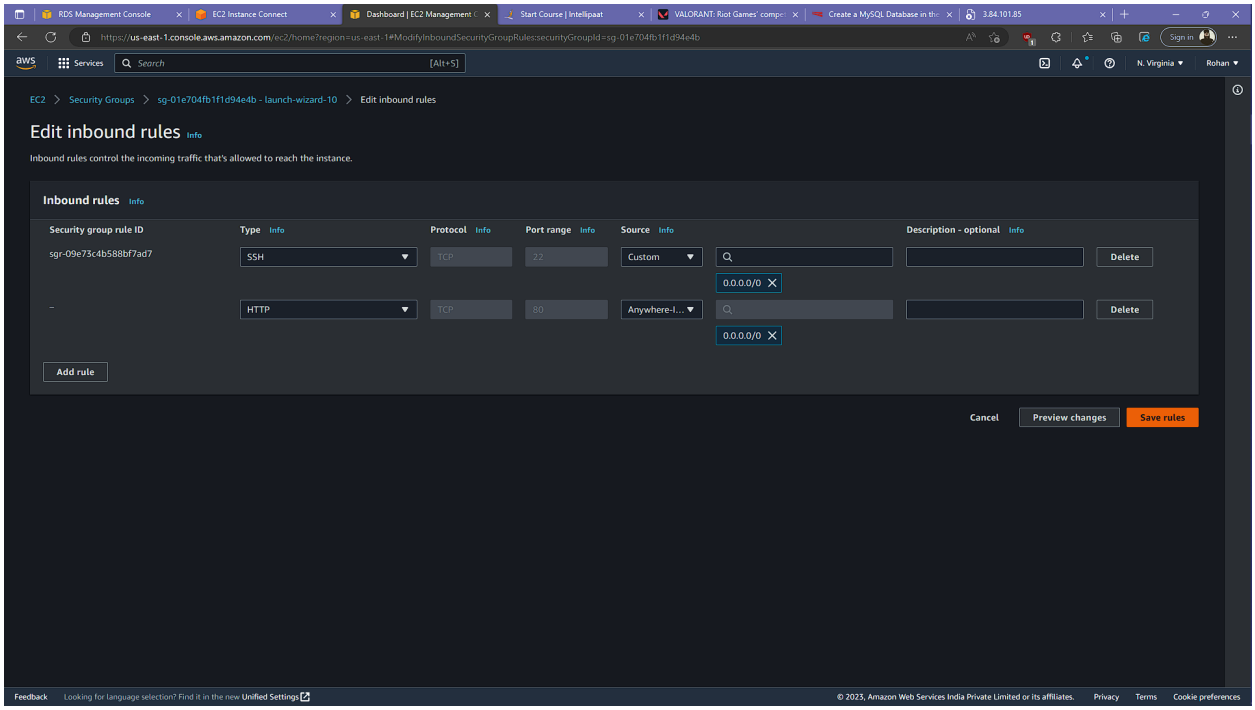




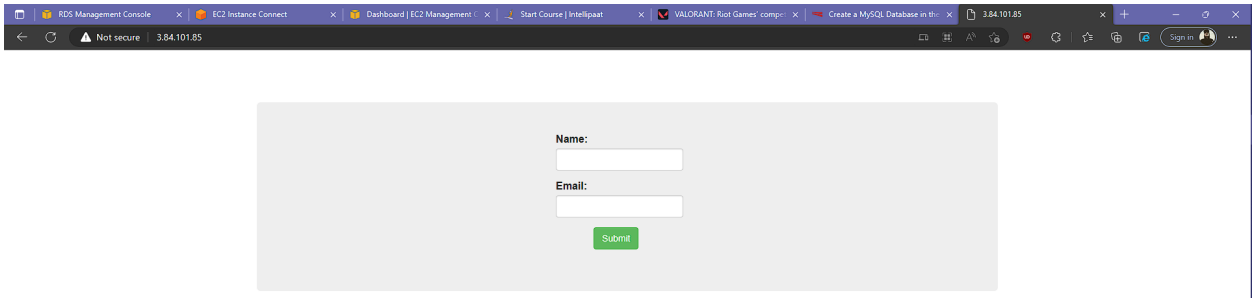
now nano index.php and paste the code provided at the end.

Make changes as per you database. Paste the username pwd and endpoint of your DB.

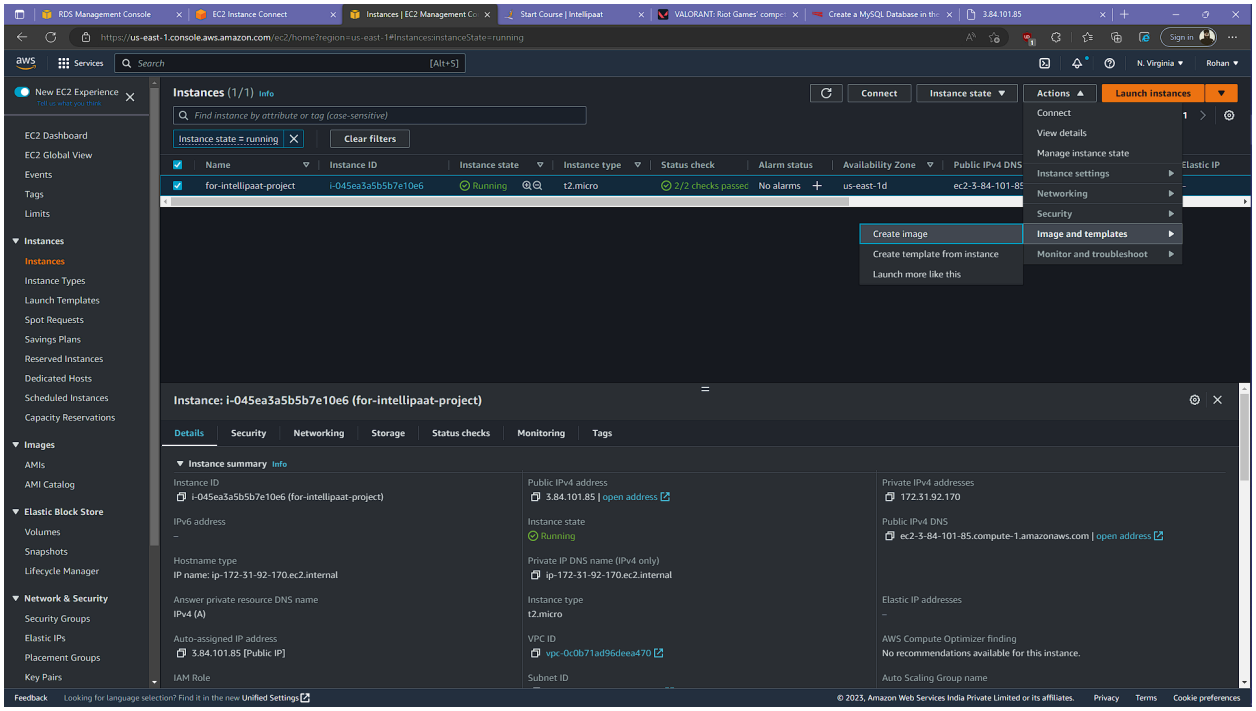


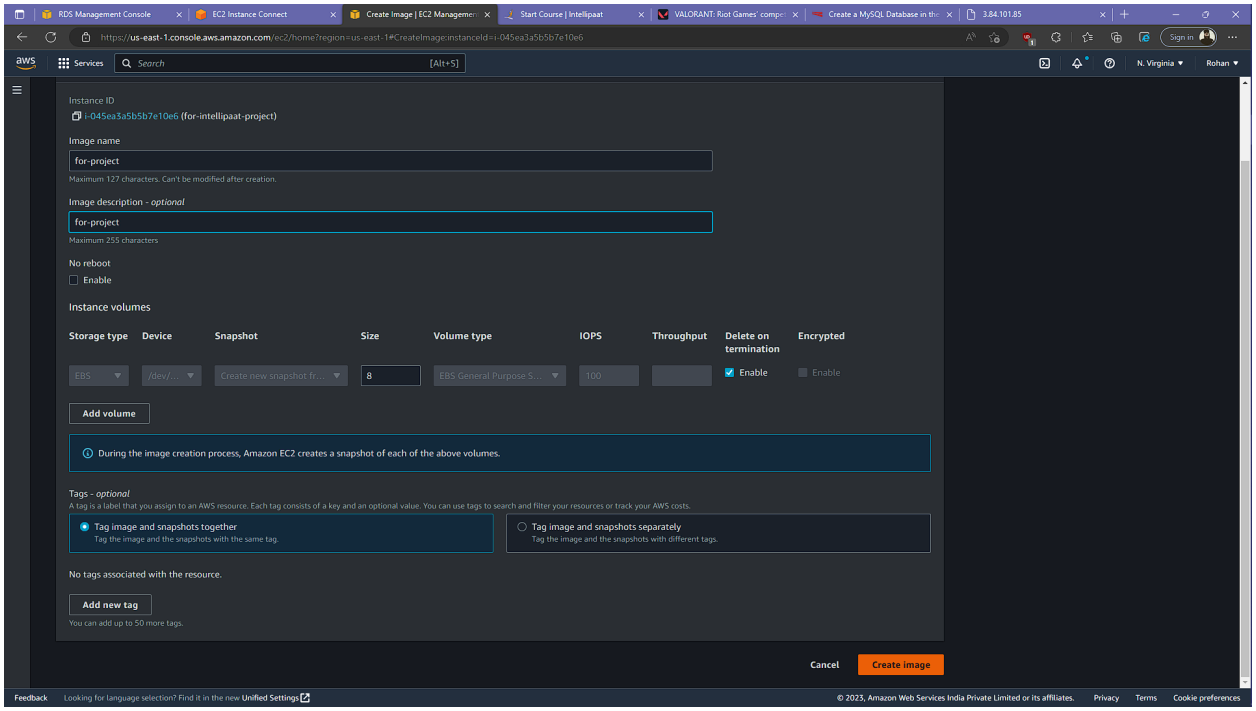


Using public ip of ec2. WEbsite is accessible.

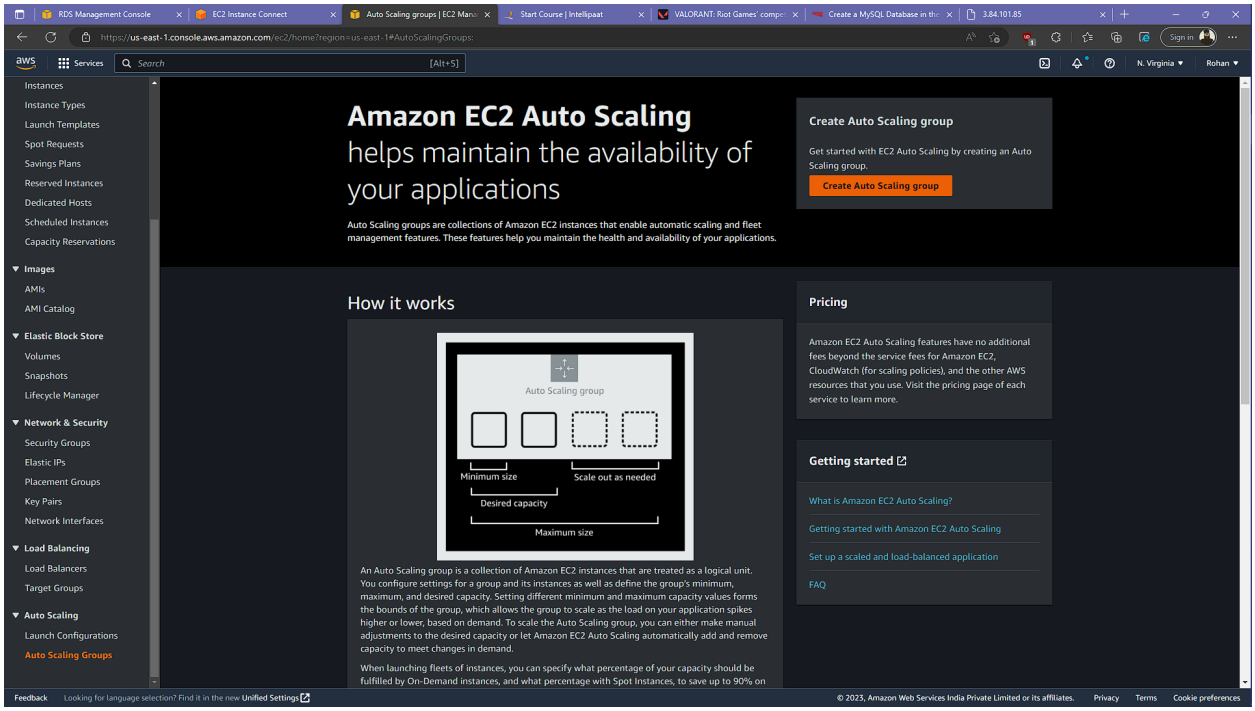


Create image of the instance.

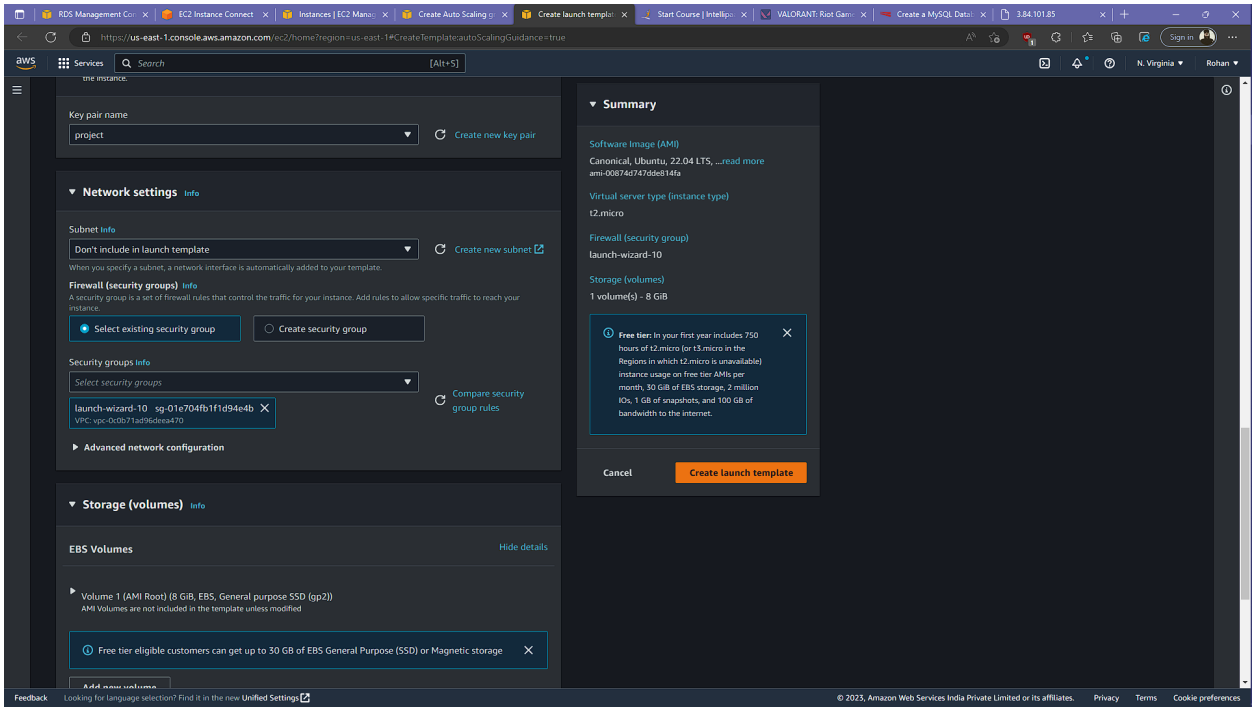




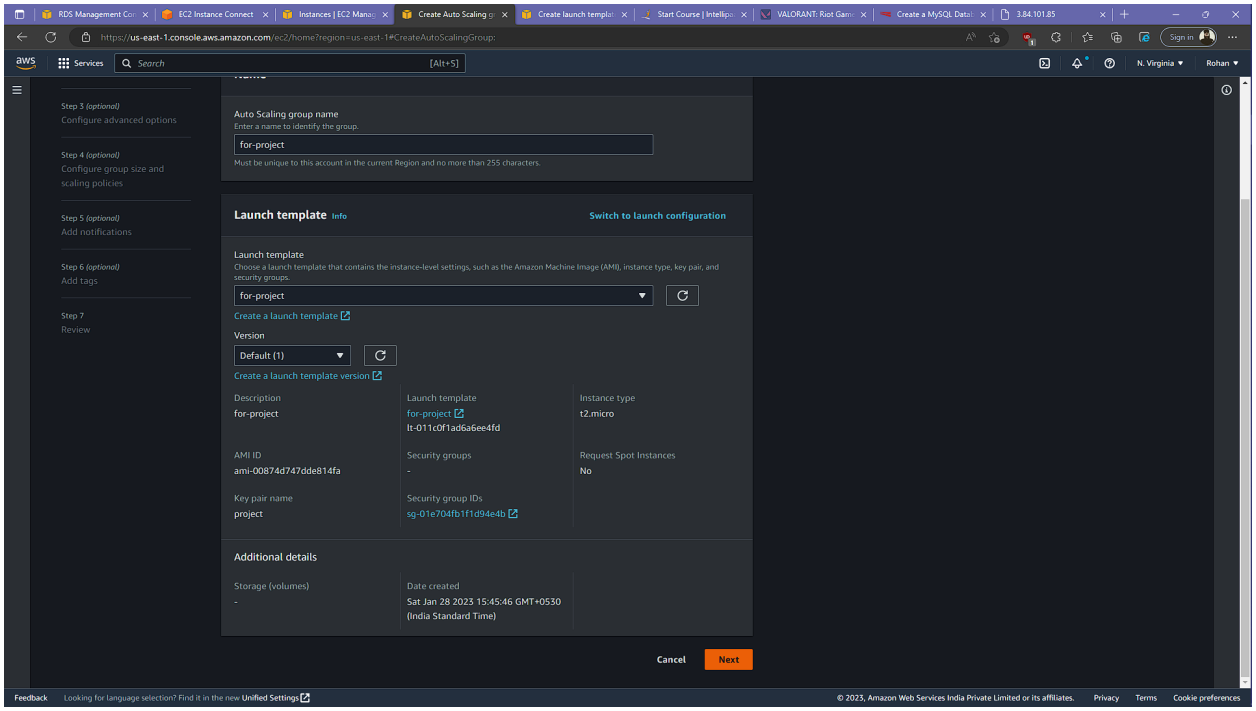
Let’s create autoscaling group and load balancer.



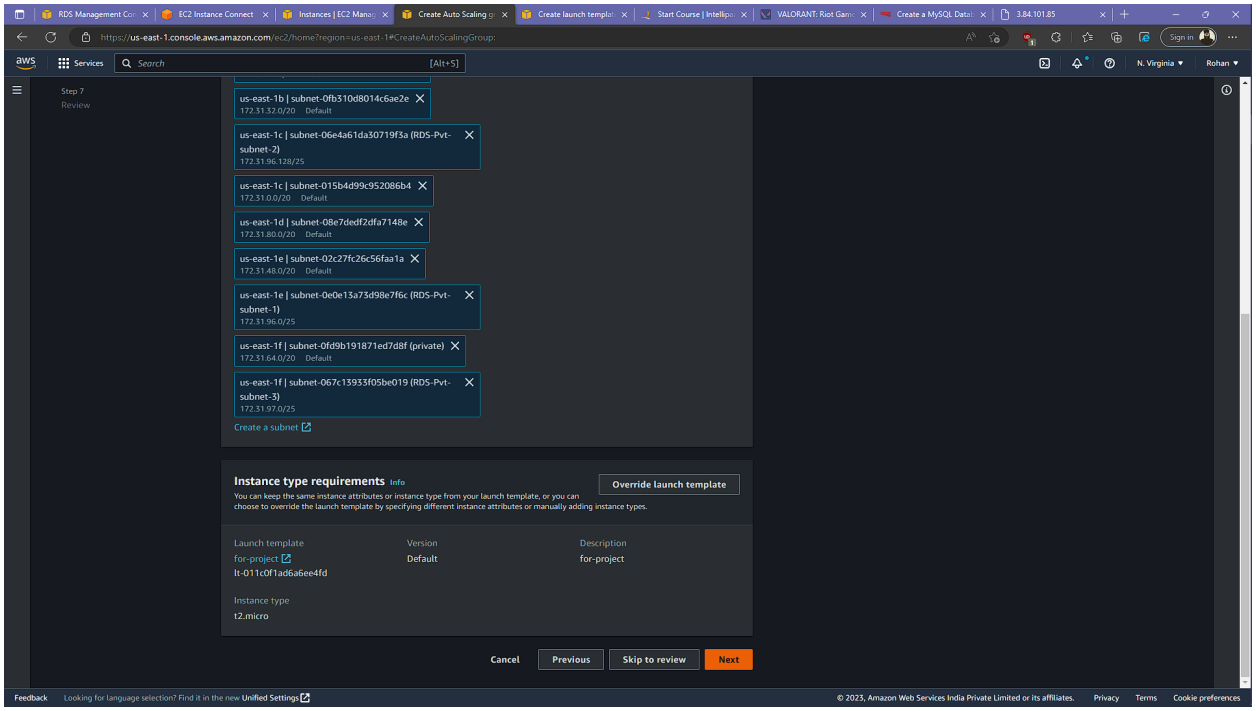
Create launch template with default config.



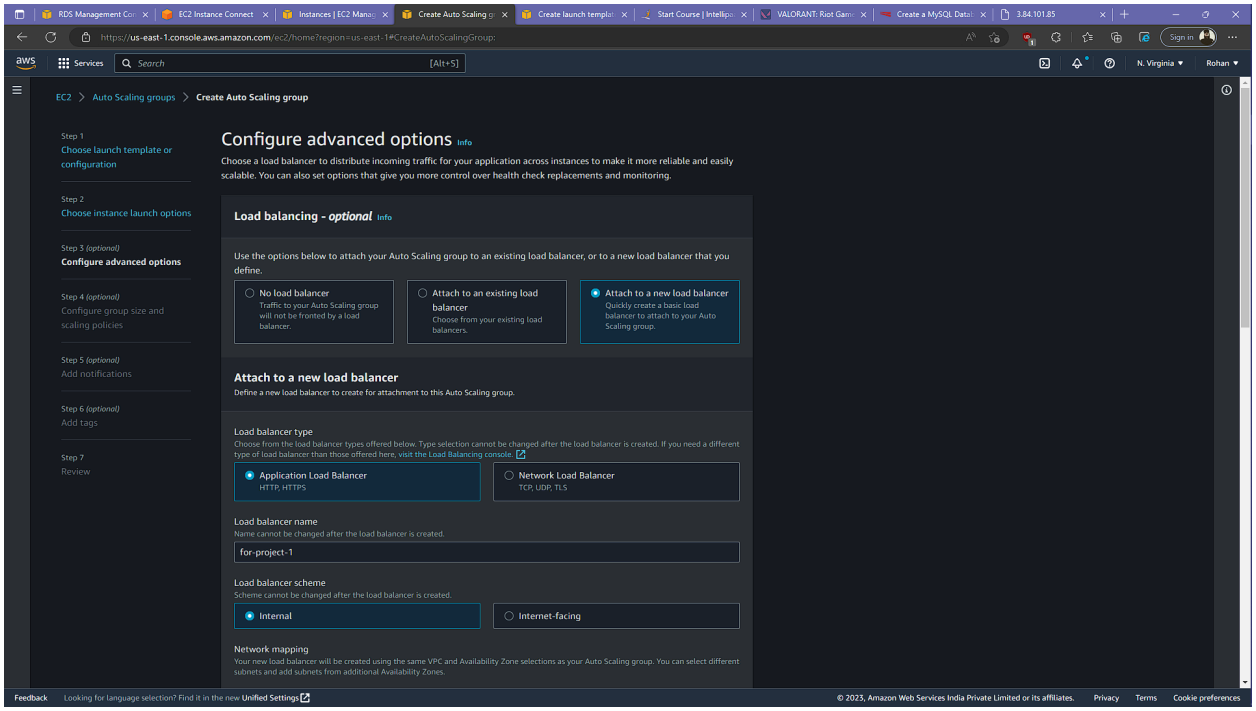
Attach that Launch Config to Autoscaling group.



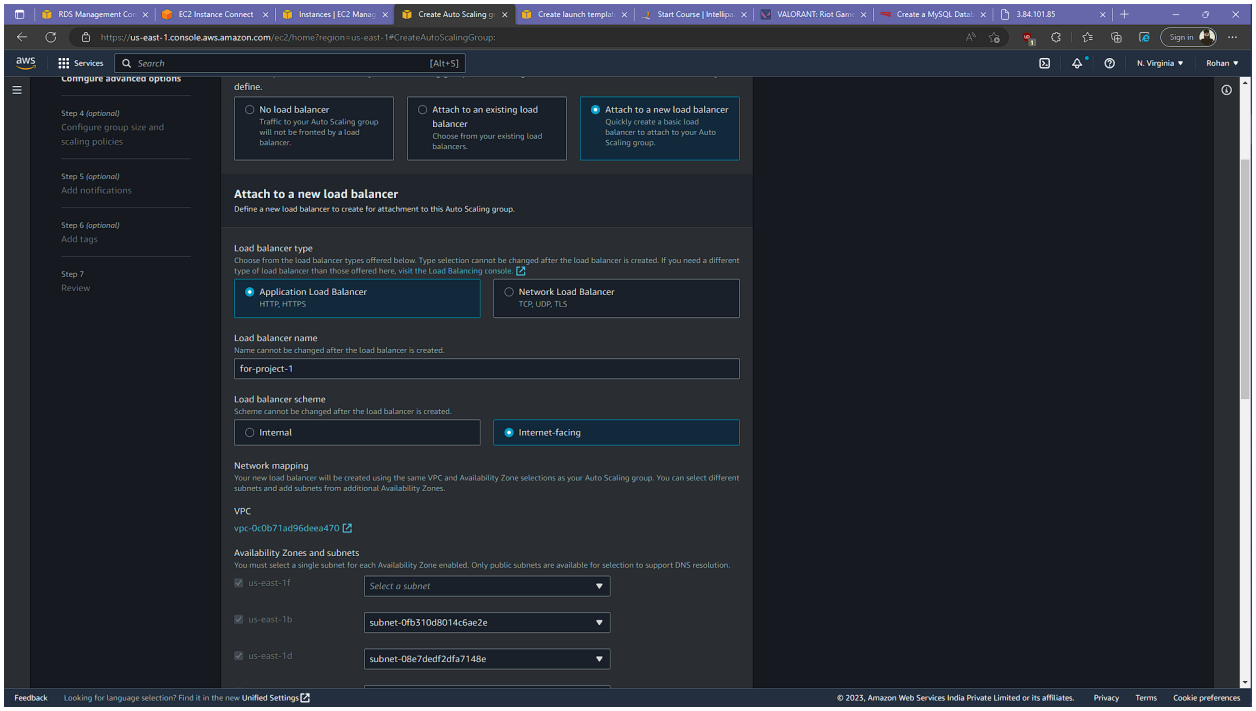
Allow all AZ's

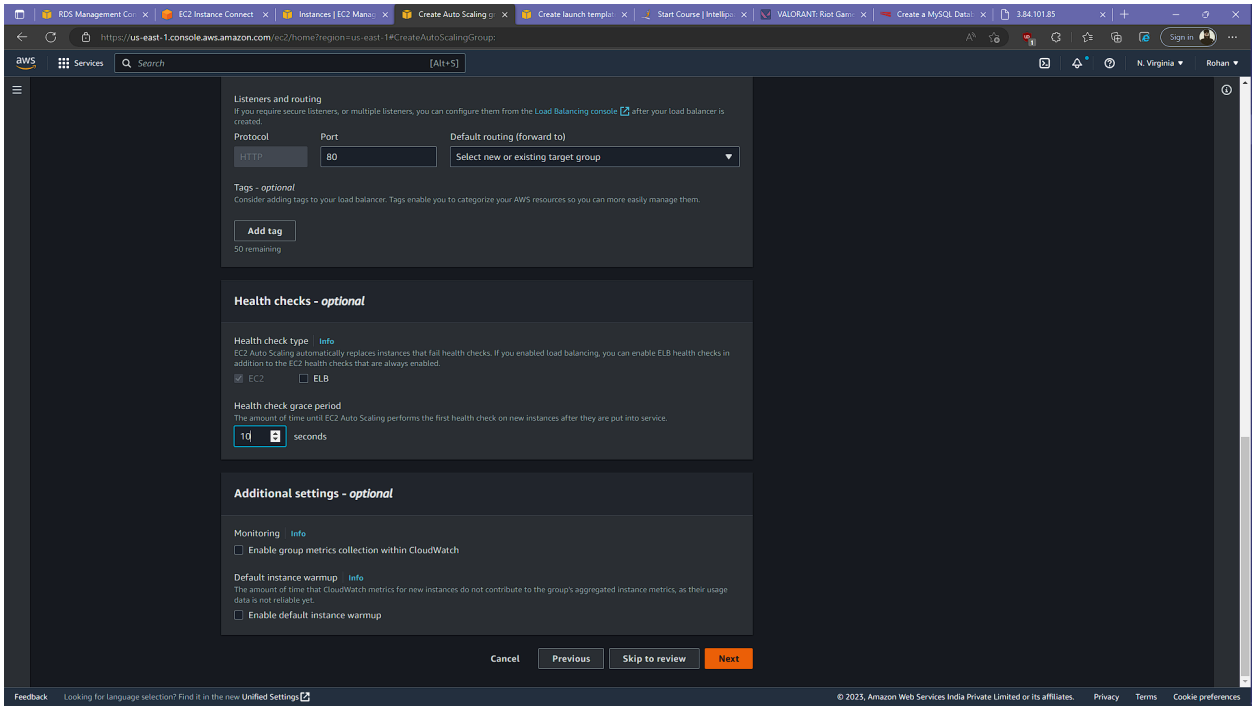


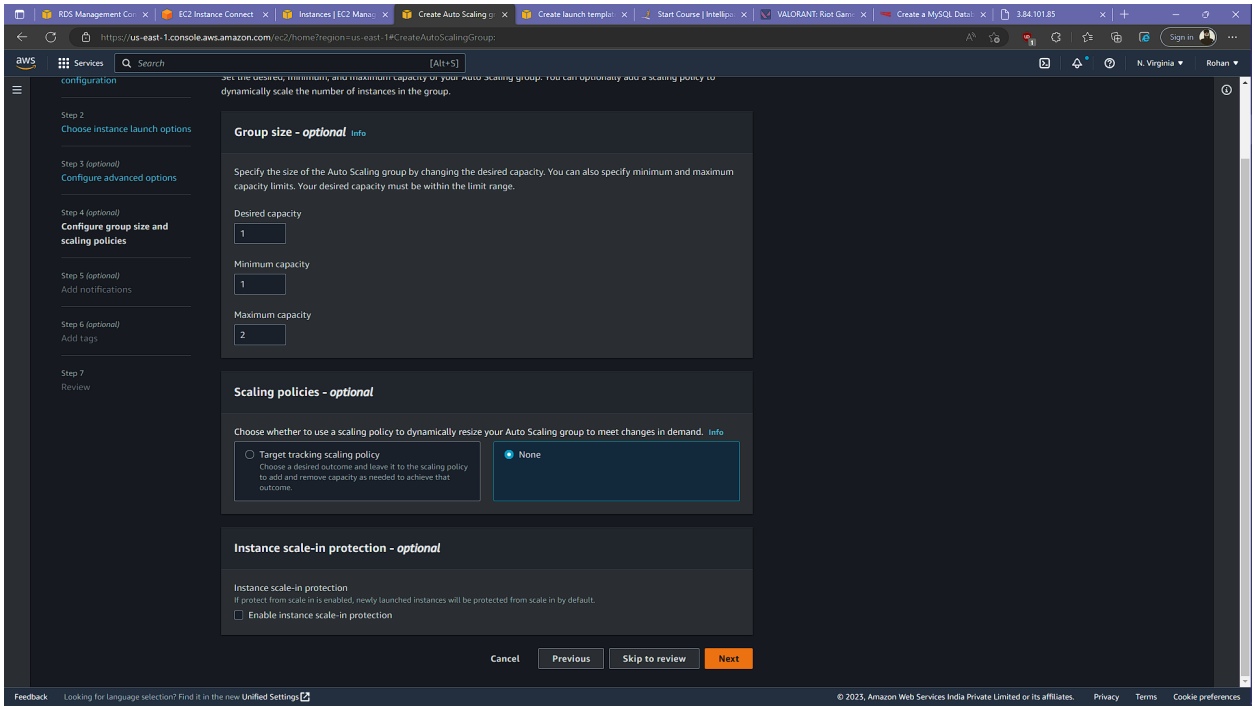
Attach a load balancer now self.

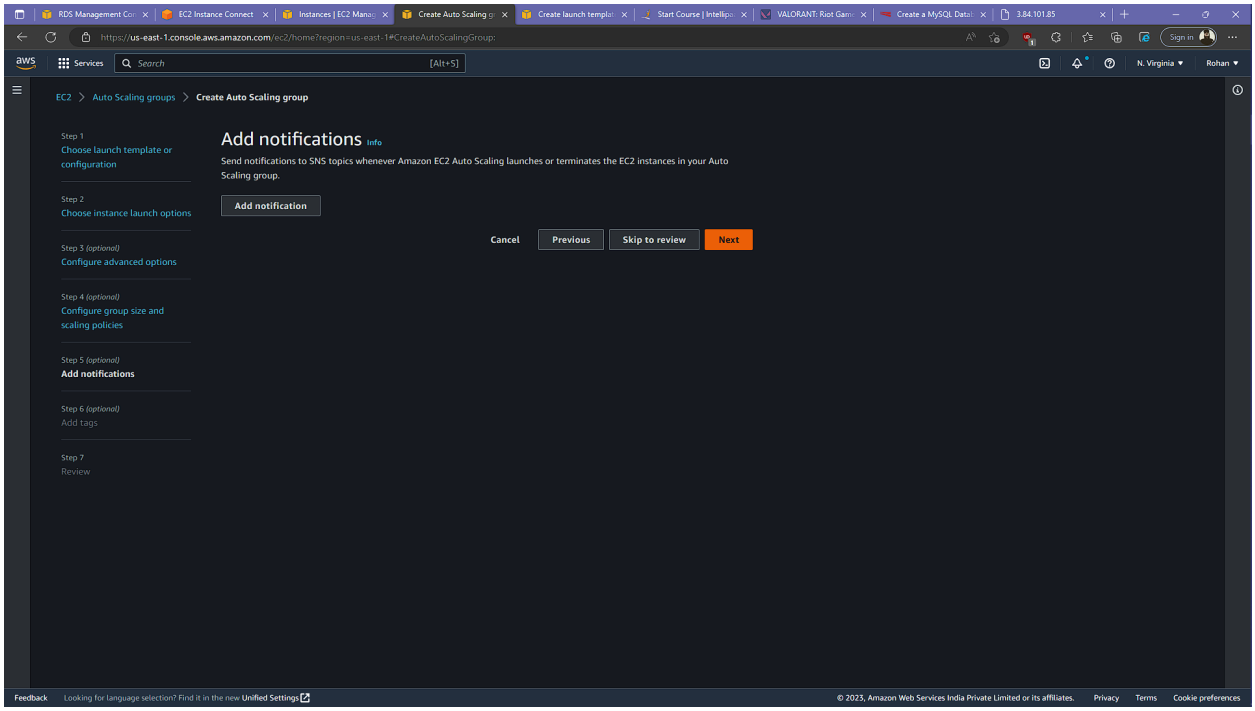


We will create a application load balancer.

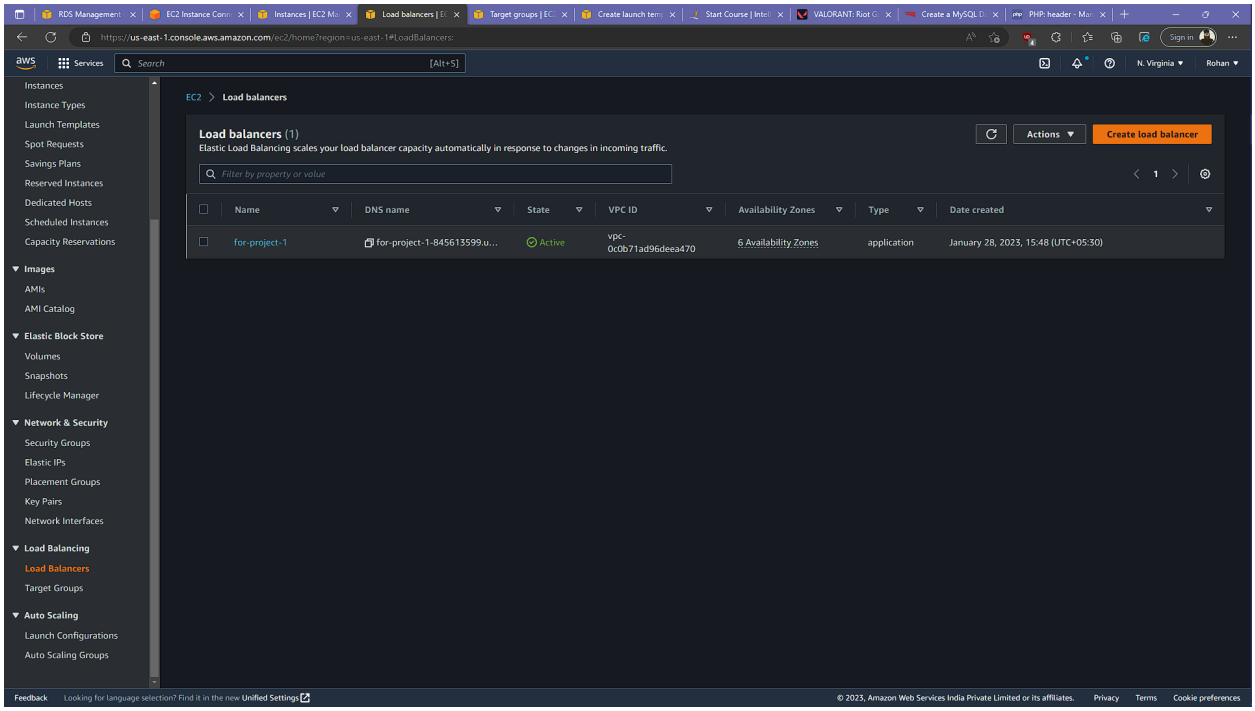




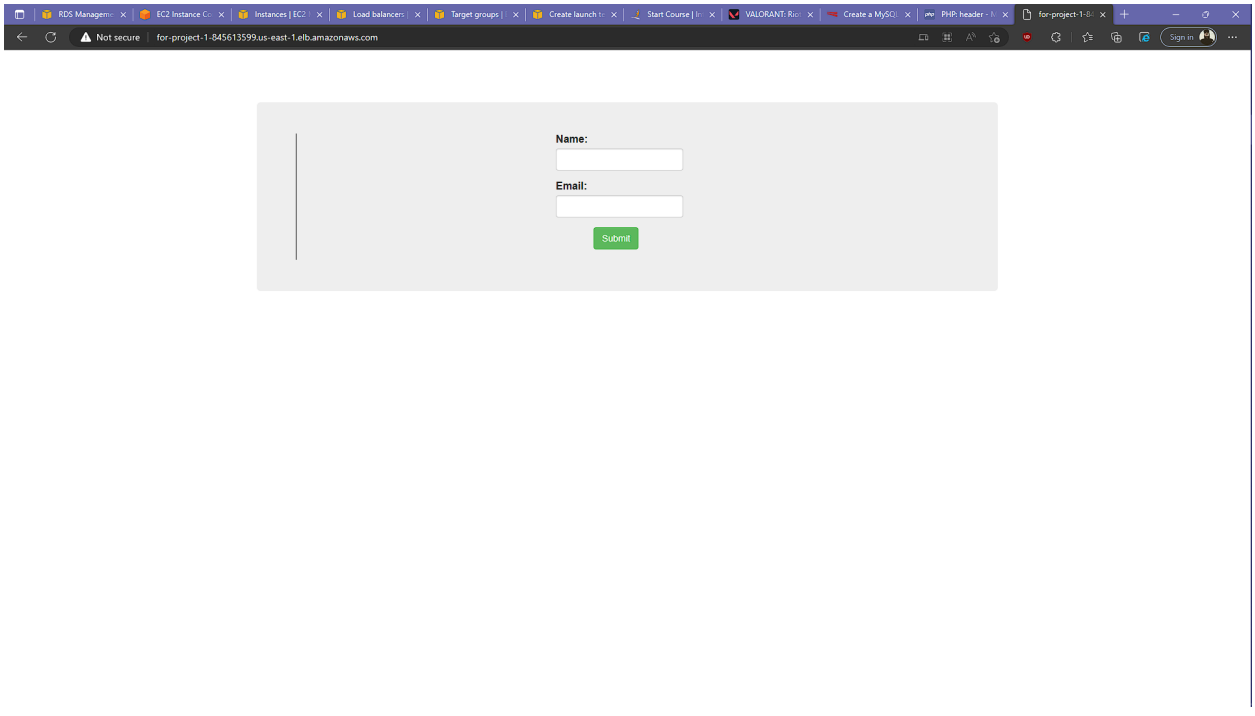




Load balancer is created.



Using load balancers's DNS we can access the website.



```
<html>
<link rel="stylesheet"
href="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.7/css/bootstrap.min.cs
s">
<body background="images/2.png" style="background-repeat:no-repeat;
background-size: 100% 100%">
<br><br><br><br>
<div class="container">
  <div class="jumbotron vertical-center">
    <table class="grid" cellspacing="0">
      <tr>
  <td
colspan="4">          &n
bsp;           &nbs
p;            
            &n
bsp;           &nbs
p;            
            &n
bsp;     </td>
  <td colspan="4">
    <form method="post">
  <div class="form-group" action="post">
    <label for="firstname">Name:</label>
    <input type="text" class="form-control" name="firstname">
  </div>
  <div class="form-group">
    <label for="email">Email:</label>
    <input type="text" class="form-control" name="email">
  </div>
            &n
bsp;<button type="submit" class="btn btn-success">Submit</button>
</form></td>
  <td colspan="4"></td>
</tr>
</table>
</div>
</div>
<?php
$firstname=$_POST['firstname'];
```

```php
$email=$_POST['email'];
$servername = "intelli.coghw13fheqo.us-east-2.rds.amazonaws.com";
$username = "admin";
$password = "Drink7up";
$db = "project";
// Create connection
$conn = new mysqli($servername, $username, $password, $db);

// Check connection
if ($conn->connect_error) {
    die("Connection failed: " . $conn->connect_error);
}
if(isset($_POST['firstname']) && isset($_POST['email'])){
$sql = "INSERT INTO data (firstname,email)
VALUES ('".$firstname."', '".$email."')";

if ($conn->query($sql) === TRUE) {
    echo "New record created successfully";
} else {
    echo "Error: " . $sql . "<br>" . $conn->error;
}

$conn->close();
}
?>
</body>
</html>
```